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ORIGINAL ARTICLES

THE PREPARATION OF TEETH FOR THE CORRECT CEMENTATION OF BANDS*

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WHILE nothing could be imagined as more superfluous or wasteful than an effort to prove the obvious, yet a critical and studious examination of almost any subject or process offers interest, no matter how familiar it may be. In fact, there is scarcely any item of our current routine that does not demand an occasional review.

The procedure of preparing the anchor teeth and cementing an orthodontic appliance is so familiar, so simple and so rarely discussed, that each of us has been left to solve its difficulties by means of his own resources and ingenuity. While common sense must lead every one in a large measure to the same conclusions, it is always possible that comparison of methods may be of interest to every one and prove helpful to almost all of us.

With observation, the processes involved grow in importance and become less and less perfunctory. It is important that no detail of the procedure of band placing should be unconsidered, and that nothing should be left to chance. The immediate value of this process which concerns the end-result of diagnosis, planning and technical skill can be judged only by inference, because all lapses are hidden and will only be disclosed by the test of time.

The efficiency of the finished appliance may be appreciably enhanced by the same sort of attention to details and regard for accuracy while placing it that has been exercised in its construction, and neglect of the slight but important details involved may materially minimize the usefulness and efficiency of the best made appliances. What might be done both readily and creditably at the laboratory bench often becomes a serious problem in the mouth of the patient, on account of physical difficulties such as gagging, anatomic variations

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inside the mouth, inelasticity of the oral tissues, or intractability of the tongue. Fear, also, or reluctance, or opposition on the part of the patient, or the danger of producing discomfort for the patient, or possibly a certain sort of negative attitude on the part of the operator, are all recognizable circumstances which may serve to prevent the satisfactory accomplishment of this part of the work. Composite experience alone can standardize this procedure and improve it.

The first step in placing an appliance is the consideration of the teeth to be banded. Efforts toward accuracy in appliance cementation will prove futile if the teeth which are to be covered are in any way defective. To say that all cavities should be filled is only to state an accepted dictum, but I should like to insist that before orthodontic treatment, all cavities and defects should be both found and filled. To this end a preliminary prophylactic treatment and most searching examination for cavities should be made. Especial attention should be given to the examination of both occlusal and approximal surfaces. For instance, the pit in the mesial fossa of the occlusal surface of the mandibular first molar should be scrutinized, and also its mesial surface approximal to the second deciduous molar, both of which points seem to be especially vulnerable, and most often overlooked.

To tell a parent about such cavities is not always pleasant, and it is unpleasant to be obliged to make lame excuses for dental oversight, but orthodontia should not be allowed to be blamed for dental remissness.

Teeth upon which bands are to be cemented should be free from colloid matter and moisture, and also free from imperfections at the margins of fillings. Overhanging gingival margins of fillings should be trimmed and the fragments surely removed. Unfilled buccal and lingual sulci, and blanched or softened areas which have not yet broken down at the gum margin both lingually and buccally should be made the matter of accurate record. Also, these vulnerable places should be protected against the carious reaction which is bound to occur if at any time the band should become loosened and moisture reach them.

In favorable instances, according to my observation, an uncarious, clean, dry tooth will be sufficiently protected against carious reaction by an autonomous cement mixture which is undisturbed until thoroughly set. In fact, in several instances in extremely fetid and neglected mouths where the bands have remained in place for months during which the patients have been ill and long absent, I have found the banded teeth unaffected when bands were removed, while their unbrushed and thoroughly accessible neighbors had suffered badly from unhygienic accumulations.

However, it is next to impossible to know by casual examination beneath which one sulcus carious reaction has already begun, which one is especially vulnerable, or which one is anatomically immune. Shallow carious grooves, concentric with gum margins are difficult to desiccate. It is mechanically impossible that cement at this point should be expected to close these places, for the outflow of cement from the edge of the band as it is being placed is too free to permit it to back up into grooves or spaces leading away at right angles to the flow of the cement. Blanched enamel areas, like thawing ice, give no evidence of what is beneath them, and are almost as much of a menace as areas of more definite disintegration of the enamel.

XUM

To meet these menacing conditions, I know of no process, technic, or agent, which promises adequate protection except the use of ammoniated silver nitrate. Silver nitrate either in the form of caustic or in solution has long been successfully employed as a control in incipient caries and to check the dissolution of the imperfect dentin in hypoplastic teeth. It has for years been a recourse in protecting denuded cementum from the reaction of retained carbohydrates, which it does so successfully as to stop the pain attending this condition, though its application is somewhat irritating for the moment.

The difficulties and pain attending the use of silver nitrate, either by direct application or in alcoholic or aqueous solution, may be avoided by the use of the ammoniated solution which can be procured in standardized form. The use of this should be followed by the application of an equal quantity of eugenol which precipitates the silver nitrate and establishes free silver in situ to the depth to which the solution has been permitted to penetrate.

The technic of the application of this agent should be minute, and accurately carried out.

The application of all liquid medicaments in the mouth should be positively restricted to the desired points, and care exercised to avoid touching the lips or allowing the medicament to spread to adjoining tissues. As my choice of several methods of application, I find that the most generally favorable one is the use of two cubes of spunk, the larger one a cube three or four millimeters in dimensions, and a smaller one the size of which will depend upon the place and condition where it is to be used. The larger one is dipped with clean stainless steel pliers into the medicament and allowed to fill itself without dripping and laid on a slab or porcelain tray. The smaller cube is used in the pliers to carry the medicament from the larger cube to the point of application.

Before the application of the silver nitrate, all colloid matter and debris should be removed from the tooth, and especially from the region of the defects to be medicated. With the help of an assistant, the tongue should be controlled and the entire tooth and adjacent gum made dry and free from blood as well as moisture. The area should be desiccated with absolute alcohol. The silver nitrate solution should be applied copiously to the area but not in excess, nor to the gum. Experience will indicate how long this application should be given to soak in; thirty seconds is not too long in many instances; at the end of which time, by the use of another similar instrument and pledgets of spunk, eugenol in equal quantity should be applied at the same point to precipitate the silver from the solution; shortly afterward the excess may be wiped away and the cotton pledgets with which the tooth in question has been isolated, removed.

I grant that the discoloration produced by this agent is decidedly objectionable, and in consequence its use is restricted to the molar teeth, but experience continues to confirm my opinion that of two evils, it is decidedly the lesser. No anxiety need be felt in respect to the effect upon adjacent perfect enamel. The precipitated silver and the discoloration will not affect sound enamel in the slightest degree. Even discolored debris and colloid matter, if present, will when removed disclose unaffected surfaces beneath them, provided

the tooth has had no carious reaction there. On the other hand, unsuspected superficial disorganization of enamel structure will be uncompromisingly located, for the agent is in effect diagnostic—no stain, no caries nor defect.

Given a softened area, it is obvious that caries is not self-limiting. In direct accord with environmental conditions, the defect can be depended upon to determine in due course, a carious cavity, and the cavity, a filling; and the filling will be evidence of mutilation, the cause of pain, and permanent tooth disfigurement, all of which are of greater moment than the disfigurement afforded by the stain. On account of the saucer-shaped character of the invasion of enamel by caries at the gum line, and the difficulty of securing good margins so near to cementum, fillings in such areas afford only a minimum of security against recurrence of decay, with the later necessity of further extension and another filling. In fact, in such places there is always a diminishing probability of permanence of this sequence of fillings. On the other hand, in many instances the application of silver nitrate seems to have established a practical immunity.

It is wise, as a preliminary to orthodontic treatment, to explain the foregoing to both parent and patient, though there is little danger of resistance or reservations on the part of the parent when the procedure and the need are carefully explained. It should be here noted that the occasion affords an opportunity to develop the matter still further, and to make it clear to parents that while a well-fitted band and careful cementation are a protection and not a menace to the banded tooth, and especially so if further fortified by the use of silver nitrate, yet no matter how much that agent restrains carious reaction under a firmly cemented band, neither technic nor reagent can prevent recurrence of caries under a loosened band. The pseudo-capillarity which is established between the tooth and a loosened anchor band becomes at once an exciting cause of caries. It cannot be too strongly urged that a loose band is a grave menace and reason for deep anxiety. The chemical reaction which is thus invited is swift and destructive; fillings are rapidly undermined and otherwise negligible defects at cavity margins are deepened and the enamel beneath the loosened band is softened throughout its entire area.

Where an anchor band has remained in situ, but loose, for any length of time, the only possible defense against the advance of caries is the further use of silver nitrate before recementation. This has proved to be an adequate check to this condition, but of course the newly softened enamel is stained as well as protected.

It should be definitely stated that it is the patient's responsibility to keep anchor bands in place, and that with few exceptions the loosening of them may be traced, through the confession of the patient, to the eating of sticky candy. It should be made clear that the depth and permanence of the silver nitrate stain is sure proof of repeated self-indulgence.

A sincere effort at self-restraint and promptness in cooperation on the part of the patient is, however, still a recourse, and if stains are not too deep and conspicuous, skill and patience and the application of potassium iodide will work wonders later in removing them, or at least in modifying the discoloration.

XUM

The use of a cement which receives moisture from the mouth during its crystallization seems to be contraindicated. The fluids of the mouth have myriads of bacteria which may be carried into the cement and to contact with the enamel, just so far as they permeate. A cement, if such could be found, that would resist the approach of oral moisture would be most desirable. I cannot insist too strongly that in practice what seems to be a suitable and dependable cement should be adopted and used without change, for I believe that a technic developed with a cement of average qualities that can be depended upon for uniformity, is a far greater resource than what might be a better cement, upon acquaintance, could possibly be until its reactions are equally understood. In the use of any cement, care should be exercised to make an autonomous mixture, i.e., one in which molecular demands will be most perfectly satisfied so that whatever fixation is contributed by the cement will be of the strongest, and so that the hope will be justified that the balance mixture will by this means invite the minimum of bacteria-bearing moisture and will resist its intrusion.

Two other agents have proved of value to me in meeting conditions incident to preparing anchor teeth for cementation. One is trichloracetic acid which is styptic, astringent and mildly anesthetic. It controls the oozing of blood through minor accidents due to band fitting, and is sufficiently sedative so that its topical application to gum margins a few minutes previous to band fitting or cementation will lessen the twinges of pain when bands are carried to place. It is especially helpful when in cementation the band and cement must go deeply beneath the heavy gum tissue distal to mandibular molars. The action of the trichloracetic acid upon the soft tissues may be readily controlled when sufficiently diffused, by the prompt application of dry bicarbonate of soda picked up on a good sized piece of wet spunk. A portion of bicarbonate of soda should be ready on a tray for instant use as needed.

The other agent is cocaine phenate. This is a balanced honey-like mixture made by adding cocaine crystals to 100 per cent phenol until a slight excess of undissolved cocaine shows at the bottom of the solution. Two drachms of this in a half-ounce glass covered bottle is sufficient supply for a considerable period, because one or two tiny drops such as will cling to a small instrument point are sufficient for most occasions where it will be needed.

This combination is actively anesthetic, nonescarotic and apparently to a great degree nontoxic—much less so than cocaine itself. When applied to overhanging unabsorbed gum tissue which has been carefully dried and isolated, the area is quickly anesthetized without being blanched, and a lancet may be used with impunity and precision for the painless removal of the excess tissue. Absolute alcohol on a pledget of spunk will dissolve and take up the unabsorbed portion of the drug, and the patient will not notice any taste or unusual feeling in the adjacent mucosa. By the use of this cocaine phenate and a proper lancet, for instance, a portion of the obstructing soft tissue on the lingual side of partially erupted mandibular premolars which point lingually may be surgically removed to permit the use of springs,

sometimes even without the knowledge of the patient, and often with so little bleeding as to escape notice.

It may have been observed that I have referred to the use of cut spunk as a medicine carrier instead of the usual cotton pellet. Besides being more absorbent, I believe that carefully cut spunk in a variety of sizes and in as nearly cubical form as possible is more readily and accurately handled for these purposes than is cotton, and has the great advantage of being without straggling threads which may be inadvertently loaded to excess and drip at the wrong time.

Nothing promotes efficiency more readily than standardization of routine and the accurate placing of instruments in preparation for an operation, and yet the measure of the value of a hard and fast routine for any procedure, lies in the flexibility with which variations in sequence may be adopted by agreement, and carried through with complete understanding.

The standardized sequences which I have developed as parts of the technic of the cementation of bands is difficult to describe with satisfaction to myself, and it is far simpler and much more nearly automatic than it could possibly seem from any description. The first approach to any technic concerns the preparation for it. To this end an enameled tray, something more than over a foot square, is placed before the patient. On it are several small glass trays, on one of which are a half-dozen dampened, almost wet, six-inch squares of gauze; on another is a piece of the same gauze upon which to deposit the wet pieces of gauze as used to wipe fingers and to wipe up excess cement, and accumulated saliva. Another small tray has small bottles of medicaments, such as absolute alcohol in a wide-mouthed bottle, trichloracetic acid to stop bleeding in an emergency, bicarbonate of soda to control the trichloracetic acid, etc. There are also on the larger tray, the cement bottles and two spatulas and two slabs ready to be removed for use in mixing. This tray always remains assembled. On it is also a supply of cut cotton rolls of various sizes, in separate compartments of a container which is always kept full, to avoid fishing into a half empty container in an emergency. On the tray there is also a special dish for the ammoniated solution of silver nitrate, and the eugenol, to which reference has been made. There are two pairs of college pliers, a band adjuster, a pair of Howe pliers to straighten up the edges of the band if it should be bent accidently in adjusting, etc., the idea being to provide for every emergency and to reduce to a minimum the possibility of any lapse or failure.

At a convenient time before mixing the cement, the appliance has been tried and final adjustments have been made. It has been assembled and waxed to exclude cement from the attachments. If the appliance is a mandibular one, the tubes on the right band are filled by melting into them a very little black card wax, which is very soft and will not later obstruct the removal of the lingual arch for treatment. The left band with the lingual arch attached is likewise waxed. If the appliance is a maxillary lingual one, both bands are attached to the lingual arch and waxed. The mandibular appliance is introduced in two parts to facilitate the control of the tongue and of moisture.

XUM

To negotiate the many physical difficulties and the fear or inexperience of the patient as well, in addition, to the routine details of the process of cementation, is often all but impossible without assistance, and it involves an unnecessary burden of uncertainty in regard to the result. Even for two persons to carry out accurately and with satisfaction the details of cementing an appliance, is often difficult, notwithstanding the closest cooperation. Yet the advantages of two pairs of hands are so apparent that it seems to be beyond argument.

The results secured through the cooperation of three persons who are accustomed to perform this operation together, are well worth making the effort to standardize the movements necessary to it, though the presence of the third person may not be required for more than a very few moments. There should be in addition to the operator, an assistant who stands beside the chair, and another assistant who mixes the cement and passes the appliance to the operator.

By this division of responsibility the patient is stabilized without consciousness of restraint, gagging is more readily controlled, the movement of the patient's head prevented, as one hand of the chair assistant is holding the head securely in place while at the same time positioning a cotton roll.

While these preparations have been in progress, the other assistant near by begins to mix the cement, a fixed quantity of the liquid for two bands being placed on the slab and powder arranged beside it in the orthodox way. The exact quantity of the powder that is used is determined by the feel of the mix and the atmospheric conditions which materially influence the speed with which cement will set.

The advantage of the procedure which follows would be self-evident if a demonstration were possible.

Let us suppose that a mandibular lingual appliance is to be placed. Beginning with the right mandibular molar, the chair assistant places the patient's head in position and applies a cotton roll lingually, holding it with the left forefinger while with the right hand the tooth is dried with cotton or cut spunk carried in college pliers. At the same time the operator places a cotton roll buccally and holds it in place with his left forefinger. The patient's head is steadied and any movement that would interfere with drying the tooth or cause tender gums to ooze, is avoided. At once the operator, with a second pair of college pliers, applies absolute alcohol to the tooth that has been wiped.

The mixing of the cement has been completed, and the band is placed right side up on the left index finger of the mixer with the lingual fixture next to the thumb. The band is carefully filled with cement, and a small square of red cellophane which will be more readily located for removal than the white, is placed on the top of the cement. The operator is in front of and facing the patient. The band is presented to the operator from a position to the right of the patient's head and about on a line with it—a little to the back. The band is taken by the operator with the thumb and forefinger of the right hand and carried to place and pressed down to place with the fingers and then with a band adjuster. The cellophane is then removed

with all the cement which will adhere to it, and pieces of damp gauze are wiped across the band and tooth to pick up the excess cement and to leave as little of the cement floating around as possible.

The chair assistant works quickly at this point and places a large cotton roll on the lingual side of the left molar, where it is held by the left forefinger of the operator. A smaller cotton roll is placed and held on the buccal side of this left molar by the assistant; the tooth is dried and alcohol is applied, the assistant drying the tooth and the operator at once applying a pledget wet with alcohol. The left band with the arch attached to it is filled with cement, the red cellophane is placed upon it and it is passed, placed, and carried to place as before, care being taken to carry each swaged band to its correct position. The disengaged right arch-end of the lingual arch is slipped into the half-round tube of the previously placed right band, and the latch snaps home. The left molar is at once wiped with pieces of damp gauze, the floating bits of cement are caught up, saliva that has become stringy from the phosphoric acid is wiped out, and the patient has the least possible remainder to rinse and spit out.

The operation is completed, and the tray taken away for cleansing and replenishing in far less time than it takes to tell it. Later, hardened bits of cement are removed from between the teeth and around the arch-ends.

Each band is now seated in accurate relation to the molar to which it has been shaped and burnished and die-struck, so that a minimum amount of cement may be employed to close the space between the band and the tooth. A reasonable portion of the excess cement lying against the gingiva and reaching down to the gingival margin of the band should be allowed to remain undisturbed until set. If sufficiently firm it will come away without leaving any portion of the cement fastened down externally to the band. If the cement between the gum and the band is just hard enough, the line of fracture will be at the band margin and nothing will remain to cause irritation later.

Essentials to complete and dependable cementation of anchor bands may be enumerated:

1. Health of the anchor tooth and the surrounding tissues.

2. A well-fitted band that will be stable when placed, conforming to the tooth so well that the band will not depend wholly upon the cement for its stability. Cement is best regarded as a space closer.

3. A correct cement mixture applied at the moment of its greatest plasticity.

4. A correct and standardized technic for placing the band, with sufficient assistance to meet instantly both the usual and the unexpected difficulties and duties incident to the operation, among which are: Combating nausea, stabilizing cotton rolls, establishing complete dryness, the tactical handling of the parts in filling them with cement and in passing them, carrying the bands completely and expeditiously to place, removing at the right time and as perfectly as possible the excess of cement.

Each of these items should be regarded as an entity and all false and unessential motions eliminated and the possibility of failure reduced to the vanishing point.

XUM

At each subsequent visit the anchor bands should be tested to see that they have not been disturbed. They should be removed and recemented if there is any doubt about their condition.

An indexed card for each patient should be kept with a record of the time of cementing or recementing of the bands, with notations of exceptional conditions by which early recementation might be indicated.

As an instance of the value of these notations mention might be made that the enamel at the mesial contact point on the first molars where the second deciduous molars touch will often be found to be affected when the deciduous molars are lost. If the anchor band is removed while the premolars are still undeveloped, a defect at this point is easily recognized and filled.

Another point to be safeguarded is the sulcus which so often outlines the periphery of the occasional fifth cusp of the maxillary first molar. Bands cannot be fitted with complete satisfaction to protect this groove, and cementation does not ever make it absolutely secure from decay.

For these, as well as other reasons, I should recommend, having used all care in placing the bands originally, that all bands should be removed, repaired and recemented at the end of twelve months if they are still in use and are to be continued in place.

This paper is in the nature of a report of progress, in respect to which there is still room for improvement. In the continued approach to this, as well as to our other problems, we may well be encouraged by the fact that someone has said that a difficulty consists of a group of circumstances, each one of which, taken separately, is easily negotiated.

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THIRD MOLAR INTERFERENCES*

By P. G. Spencer, D.D.S., Waco, Texas

ORTHODONTIA as a specialty is of course in its infancy. Yet we are rapidly approaching treatment from the angle of prevention rather than from the opposite direction. From a vague theory of normal we are, I hope, beginning to realize first what should be normal to each individual. To prove the fallacy of our past advanced thought we have only to make an unbiased study of our failures. A few years ago, and in some locations at the present time, mechanics represents the sum total of orthodontic procedure. The more vicious the appliance, the more so-called positive action, usually assures repression of every normal tendency, yet such procedures are termed one hundred per cent perfection.

After a decade of experimenting and hilariously shifting teeth en masse and otherwise, we note a sudden trend of our literature to root resorption, muscle exercises, diet, apical base, endocrine imbalance, gymnastics, sleeping postures, Simonizing, and many other subjects. And following the above, comes orthodontic education. Just what prompts these changes in our literature, if it is not a summing up of our failures?

Since the beginning of time, the swiftly changing conditions, be it progress, and termed civilization, make it positively necessary that compensating changes occur, be they devitalized or dehydrated foodstuffs, the hem of the skirt, or tooth impactions.

Orthodontic interference should be such that it not only corrects defects, if possible, but with the improved conditions promotes continued progress after dismissing the case. Without some positive assurance that the third molars may erupt properly and serve normally, some provision must be made to prevent their being a direct hindrance to the normal functioning of the other teeth of the arch.

Without any desire to start an argument may I ask you to note the faces in this room, or of the men who are attending the Convention. What percentage do you suppose have third molars in position or have room for them? Or how many have found it necessary to have them removed? To simplify the argument, let us agree that not a single man attending this convention has ever received any orthodontic treatment, and to keep peace in the family, admit that with treatment, ample space might have been provided. Then let us examine the casts in our offices of patients of twelve and fourteen years of age and note the positions of the second molars, the percentage of inferior second molars that are being rotated lingually. Then let us examine the casts made a few years after treatment, patients of fifteen or eighteen years of age who do not yet have fully erupted third molars. What has happened and what is going on? It is all very soothing to our peace of mind to say that the third molar normally has sufficient space, or that space will develop or has developed during eruption. However, a survey of the past four or five years of several thousand adult mouths, and also

*Part of work required by the American Board of Orthodontists.

from examination of treated cases in various orthodontic practices, makes it very doubtful that even 10 per cent of those examined have or ever will have sufficient space for normal function of the third molars. If only the occlusal surface erupts, and if we are satisfied to have with us continually the pathologic gum flap, or if the future abode of the mandibular third molar is to be on the internal surface of the ramus, then we need not worry about the third molar problem. Radiographs of mandibular third molars made from the proper angle should show two-thirds or more of the occlusal surface, anterior to the external oblique ridge, otherwise, the above mentioned condition will always be present.

The age of patient, position, size, and type of unerupted teeth are all dependent on the type of malocclusion and make each case a problem unto itself, and make it impossible for any set rule to govern any case except in a general way.

Systematic, periodic radiographic examination for several years prior to the eruption of the third molars, beginning as early as the twelfth year, will disclose that:

(1) By noting the plane of occlusion of the first and second molars it is evident that in most all open-bite cases the third molars, both mandibular and maxillary, are a real contributing local factor to the malocclusion.

(2) In all mesioclusions, the inferior third molars are with few exceptions tending to defeat the result that we hope to accomplish through our treatment.

(3) In all distoclusions the inferior third molars are, at least during treatment, a decided help in treatment; but after development has been stimulated to the fullest extent, often a few years after treatment the incisors are crowded. Is it only a coincidence that the third molar is just making its appearance? I hardly think we can attribute such crowding to improper muscular function, sleeping postures and what not.

(4) By any method of reasoning, diagnosis, measurement or even the use of mystic occult powers, we note in numerous types of distoclusions that the individual never has had or never will have sufficient space to accommodate thirty-two teeth. At least that amount of tooth structure will not blend in harmony with that particular individual's facial outline. I grant you that we are often able to present very pleasing casts with third molars in ideal occlusion, but let us note some of these fully equipped apertures "on location." What are we going to do about it? Is it a good practice to shorten a wagon tongue by removing the center section?

If we believe our phrenologistic instructors, we realize that with the growth of the brain chamber and mental progress there is also a recession of the lower third of the face. The lessened effort necessary to secure our food from what it was several thousand years ago is making our third molar problem a very positive fact.

A questionnaire sent to a number of orthodontists a few years ago relative to the third molar problem derived the information that 5 to 95 per cent of their patients had insufficient space for proper functioning of the third molars. My experience has been that not more than 5 per cent of treated cases have sufficient space for third molars.

XUM

Examinations of several thousand Negroes showed that true blood types have ample room, and a small percentage have fourth molars. With the mixing of types a noticeable amount of space was lost.

TREATMENT

Each case is a study unto itself. Removal of any tooth must be preceded by careful study of that particular individual's need. In a majority of cases, depending of course upon the x-ray findings it is possible, even up to the age of seventeen years, and sometimes in older patients, to remove the second molar in the maxillary arch and to permit the third molar to erupt into proper position. This procedure would be possible in most open-bite cases, also in a large percentage of distoclusions and those types of mesioclusions that have a tendency also to become open-bites. Radiographs in such cases show the maxillary second and third molars to be producing an elongation of the first molar.

In the mandibular arch an entirely different problem is presented. The position of the unerupted third molar is seldom such that it can be utilized to replace the second molar. It would be necessary to remove the second molar very early, at least several years before the normal eruption of the third molar, to be assured that the third would erupt into the desired position. The removal of the mandibular second molar might be of decided advantage in extreme cases of mesioclusion.

The impacted third molar with its surgical removal is not a passing fancy of our friends the exodontists, but rather in recent years it is being properly recognized as a disturbing factor in many other ways besides from an orthodontic standpoint. Observations made a few years ago at one army camp where thousands of men, recently drafted into service and placed on rations requiring increased mastication, showed that more than 60 per cent were subject to some form of third molar complication, with an average of 250 to 500 reporting weekly at the dental infirmary for treatment. One must bear in mind that the majority of these men were at the age when the third molar is often making its appearance. Yet it was an awakening fact to any one directly out of private practice to note in dentitions that were otherwise above the average in freedom from dental ills to find such a high percentage suffering from third molar impaction difficulties.

If this brief paper receives decidedly adverse criticism, its object will have been attained 100 per cent, as it is only through disagreement and discussion that we ever arrive at a worthwhile conclusion.

If through lack of function Nature is endeavoring to carry on through a process of elimination, and anatomical changes are made in the present human dentition, we can safely prophesy that the orthodontist a few thousand years hence will find real pleasure and joy in his practice, for in that great day when the normal dentition numbers a scant half dozen teeth and with the continued progress in the "newest and best orthodontic appliances" surely it will be a simple matter to secure 100 per cent perfection in all cases.

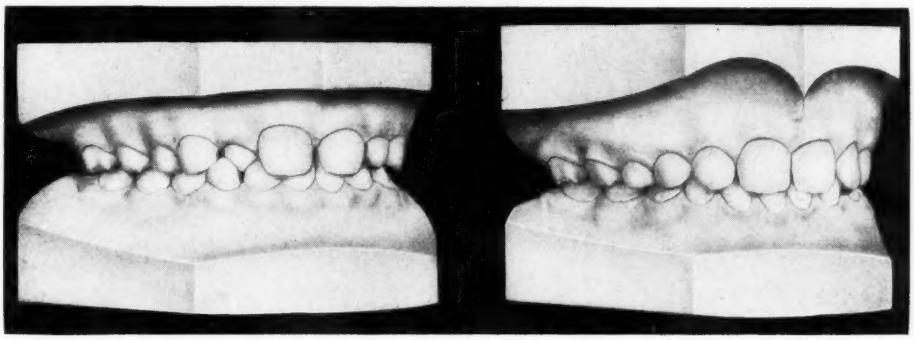
XUM

SELF-CORRECTION OF A MAXILLARY LATERAL INCISOR IN LINGUOVERSION

By Max J. Futterman, D.D.S., New York, N. Y.

THE case here reported should be of interest to those who are interested in the complex problem of development.

The patient, a boy aged six years, well developed physically and mentally, presented himself at my office for dental examination and treatment. Both arches were well developed, but the maxillary right lateral incisor was in linguoversion. Not only was the lateral almost fully erupted in a lingual position, but it was already "locked in," as can be easily seen by noting its



A B

Fig. 1.

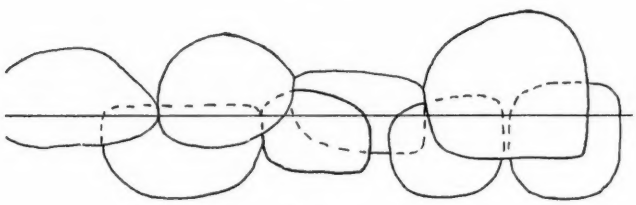


Fig. 2.

position in Fig. 1 *A*. A vertical diagram of the area, Fig. 2, shows more graphically the exact amount of locking that has taken place.

After performing the necessary operative work, I attempted to explain to the parents of the child why it would be absolutely essential to have the lateral brought into its correct position in the arch. The parents told me they would "think it over." I waited and waited, but the patient did not return. Every time I looked at the model, I had visions of what I thought was happening to the boy's dental arches.

About eight months later, I was informed by the boy's aunt that the tooth had assumed its correct position in the maxilla. In view of the original lingual position of the tooth, I was rather skeptical in believing that the lateral had

assumed a new position. The boy was subsequently brought to my office, and I found that the lateral had assumed a correct position, as shown in Fig. 1 *B*.

It is important to note that the youngster had not applied any artificial means of correcting this malformation, such as the use of tongue depressors, wood sticks, or pencils.

We all know that the tongue is an unusually active muscular organ, and it could only be through the action of this muscular structure that the tooth was forced into its normal position.

XUM

EFFECT OF THE LOWER THIRD OF THE FACE ON THE PROFILE

By J. E. Richmond, D.D.S., Eugene, Ore.

CASE reports showing the effect of correcting faulty jaw relations are so common that it seems there is little to be added. These reports are often accompanied by photographs taken before and after correction, and these usually show a great improvement in all the features, which might be ascribed to an improvement in the function of all the facial muscles and to the natural changes due to elapsed time because the two or more years, usual for such corrections, mean much at the age when such work is usually done.

In an effort to discover just how the improvement of the lips and chin would effect the rest of the features without actually changing them, I made a drawing from a photograph of one of my patients who has a distoclusion with

Fig. 1. Fig. 2.

the usual prominence of the maxillary anterior teeth (Fig. 1), then laid a strip of paper across the lower portion of the face and drew on it the lips and chin as I conceived that they should be (Fig. 2). By pasting one end of this strip of paper to the edge of the first picture it was possible, by lifting the strip and then placing it in position, to see the boy with the uncorrected and the corrected condition with the other features unchanged. This picture has been shown to several different groups to illustrate talks on orthodontia and has always produced a gasp of amazement to see the eye brighten, the nose become more shapely, the forehead take on dignity and even the hair liven up by the mere correction of the lips and chin. In other words, much of the beauty or lack of it ascribed to the features of the upper two-thirds of the face is not inherent in those features themselves but is, at least to a remarkable extent, an optical illusion due to the perfection or imperfection of the lips and chin.

In order to show the same principle with facial casts it was desirable to have three casts that would be identical in all features except the lips and chin and which should show typical Class II and Class III conditions besides a normal occlusion. The result is shown in Fig. 3. It is difficult to realize that these faces differ only in their lower thirds, but by laying a card across them just below the nose one can see that they really are identical.

The technic of constructing these casts was as follows: A patient whose correction had resulted in an unusually good profile was selected, and a lateral impression of the face and head was taken in snow-white plaster according to

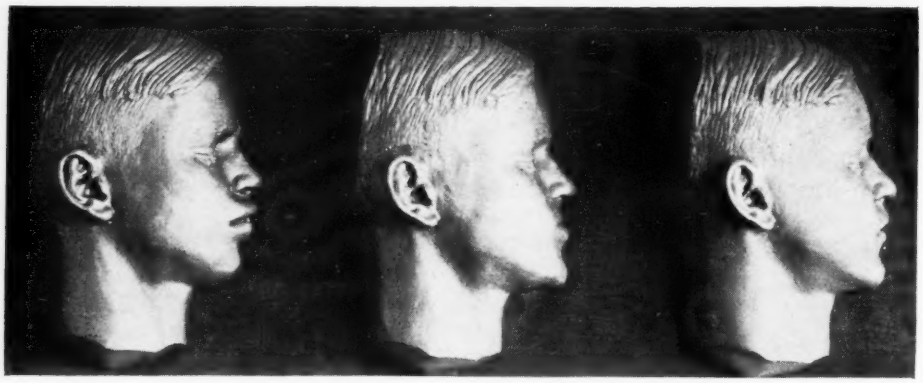


Fig. 3.

Fig. 4.

the method which has been published in several text books and need not be repeated here. The impression was then painted with separating medium and poured with an artificial stone. When this was separated, it became a master model from which the others were all made. First it was trimmed to lie perfectly flat on the median line, and then an impression was made of it in sections, using impression compound and sectioning it so that each piece could be removed without distortion (the impression of the ear had to be made in eight pieces. Then the impression was removed, a piece at a time, and reassembled and well reinforced. This impression was then poured and a duplicate of the master model was the result (this is the normal model at the right in Fig. 3).

XUM

Now came the problem of getting the appearance of a Class II and of a Class III condition on a cast, leaving the other features the same. To do this, a plaster saw was used to remove a square section carrying the lips and chin as shown in Fig. 4. Then the cast was laid on a piece of plate glass, and the lips and chin of a Class II case were built into place with plasticene. An artificial tooth was used to represent the central incisor that was habitually exposed in this case before correction. When this had been carved to satisfaction, the plaster model was gently slipped away from it, leaving the plasticene lips and chin undisturbed. Soft plaster was then poured carefully over the plasticene. When it was set, the plasticene was removed and the impression poured in stone. When this was separated, it produced a section that fitted accurately into the sawn-out portion of the master model and then a sectional modeling-compound impression was made which gave the cast at the left. By following the same technic, the center cast with the Class III profile was made.

These three casts were then given a coat of bronze paint and mounted on a board covered with green velvet.

The pictures and models have both been very effective in aiding me to explain to patients the effect on the whole face of changes in the lower third.

CASE REPORT*

By Victor Lay, D.D.S., Buffalo, N. Y.

PATIENT is a boy, aged eight years. Impressions were taken Feb. 21, 1931.

History.—At birth the child's neck and spine were injured. He had been breast fed. He had had measles, mumps, and chickenpox. He had suffered from bowel obstructions. The child had fifty epileptic seizures in three weeks. He was underweight, and his intelligence and responses were somewhat below normal.

Etiology.—From the dental evidence, such as involvement of the premaxilla, supernumerary central incisor in the median line, defective enamel of the lingually malposed maxillary lateral incisors, and a somewhat hirsute tendency, I suspected pituitary involvement. An endocrinologist whom I consulted did not,

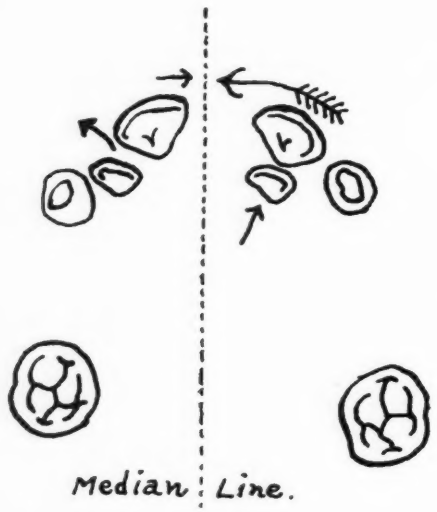


Fig. 1.—Diagram of tooth movement necessary.

however, agree with my supposition. He diagnosed from the case history some injury to the brain at birth. I am unable to determine any other etiologic factors.

Diagnosis.—The case is an Angle Class I Neutroclusion. There was a supernumerary central incisor, almost the same size as the normal central incisors, occupying the median line. The supernumerary incisor was 8.5 mm. wide and 22 mm. long. The normal left central was 9 mm. in width and the normal right central was 9.5 mm. in width. The space between the normal centrals was 9 mm. The supernumerary, as well as the maxillary lateral incisors, was lingually malposed. The maxillary right central was in fairly normal position but was 2.5 mm. from the median line of the face and of the mandibular central incisors. The

*Read before the Southern Society of Orthodontists, December 3, 1931.

maxillary left central was 6.5 mm. from the median line, and in a state of torsiversion with the mesial surface presented labially. The extreme separation of the normal maxillary central incisors had probably caused the lingual malposition of the maxillary lateral incisors.

There is possibly some narrowness of both arches, which may be typal, as there is sufficient space for the remaining unerupted teeth. Full mouth x-ray pictures showed the unerupted teeth to be developing normally.

Treatment.—The supernumerary central incisor was extracted by the dentist who referred the case.

The maxillary permanent molars were banded with gold platinum 20 per cent, 0.007 by 0.18 in. Horizontal buccal tubes were used, 18 K gold, 0.076 by

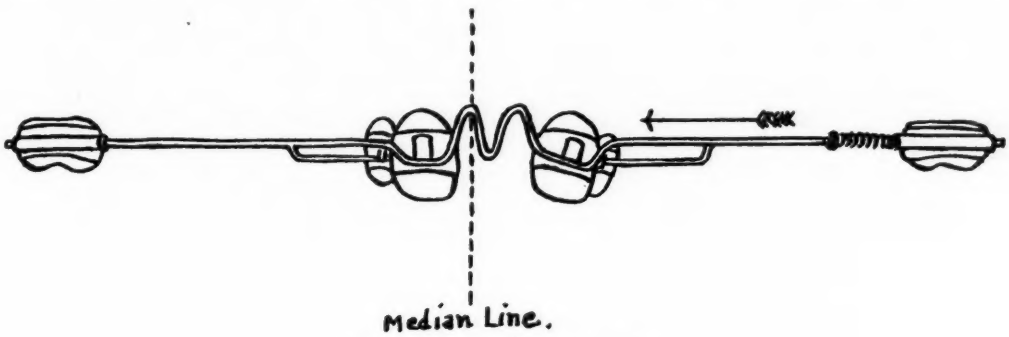


Fig. 2.—Diagram of appliance.

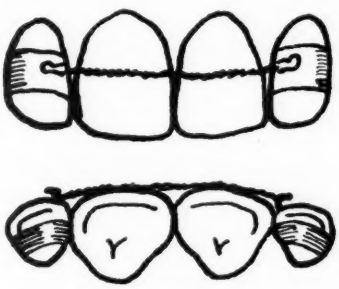


Fig. 3.—Diagram of retention appliance.

0.036 by 0.50 in. The maxillary central incisors were banded with gold platinum 20 per cent, 0.005 by 0.15 in. Gold solder, 18 K, was used to reinforce the labial and lingual.

Half-round tubes were soldered vertically on the labial surface of centrals for attachment to labial alignment wire, for control in moving the teeth bodily to the median line, and for rotation of the left maxillary central incisor.

Labial alignment wire, gold platinum 20 per cent, 20 gauge, round, was used. Double loops were made at the median line to close the space between the normal central incisors. Half-round posts were soldered on alignment wire to engage the half-round tubes on the central bands.

As the maxillary left central was much farther from the median line than the right central, I could not depend wholly upon the reciprocal force of the looped wire to move the right central incisor 2.5 mm. and the left central incisor 6.5 mm.; therefore I used a stopper on the labial wire anterior to the

maxillary left molar buccal tube. Between this stopper and the buccal tube was placed a gold platinum coiled spring. There was no stopper placed on the right side anterior to the molar buccal tube.

The space between the central incisors was eliminated by the gradual closure of the alignment wire loops in the median line and by the increase of the coiled spring pressure at the maxillary left molar.

The maxillary lateral incisors, being in lingual malposition, were banded with gold platinum 20 per cent, 0.004 by 0.15 in. To the labial surface of these

Fig. 4.—Photographs of patient, before and after treatment.

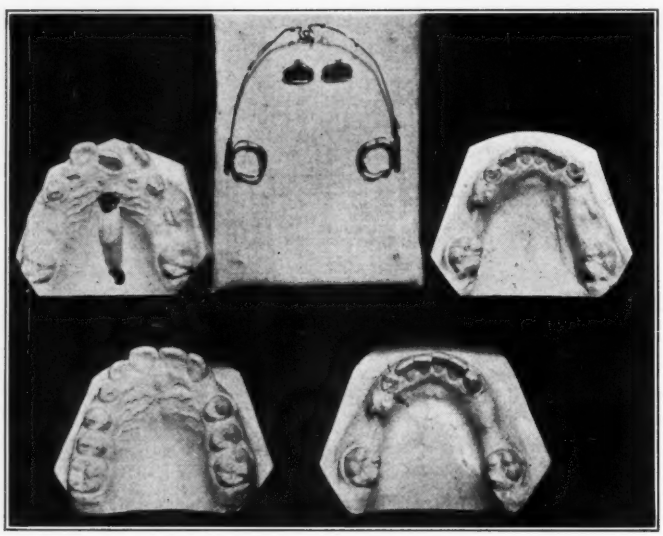


Fig. 5.

bands I soldered clip attachments which engaged the free ends of the labial auxiliary springs, for the labial movement of these teeth.

The maxillary right lateral, having sufficient space, was moved quickly into correct alignment by September 1, 1931. The maxillary left lateral, being in extreme lingual malposition, presented difficulties in correction. This tooth was pointed at the incisal edge, somewhat resembling a canine. This point engaged the lingual surface of the mandibular incisors and prevented the tooth from jumping the bite, as we term it, in the course of its labial movement.

An additional obstacle was the lack of space between the maxillary left central and the maxillary deciduous left canine.

XUM

I ground off the point on the maxillary left lateral to reduce resistance in jumping the bite. I ground the mesial surface of the maxillary left deciduous canine, endeavoring to create more space for the labial movement of the maxillary left lateral. The space was still insufficient; so on September 22, 1931, the deciduous canine was extracted. I also ground off the point of the mandibular left deciduous canine.

The mandibular incisors offered great resistance to the labial movement of the lateral; so I decided to open the bite by the addition of cement to the occlusal surface of the maxillary first permanent molars. Cement was added to the molar occlusal surfaces September 15, 1931, to open the bite and also to prevent traumatic occlusion on the lateral by the mandibular incisors. The lateral was showing signs of looseness, but at no time was any soreness noted.

The next opposition to the labial movement was the lingual surface of the maxillary left central incisor; therefore I had to change the direction of the pull exerted by the labial auxiliary spring. It was necessary to change the direction

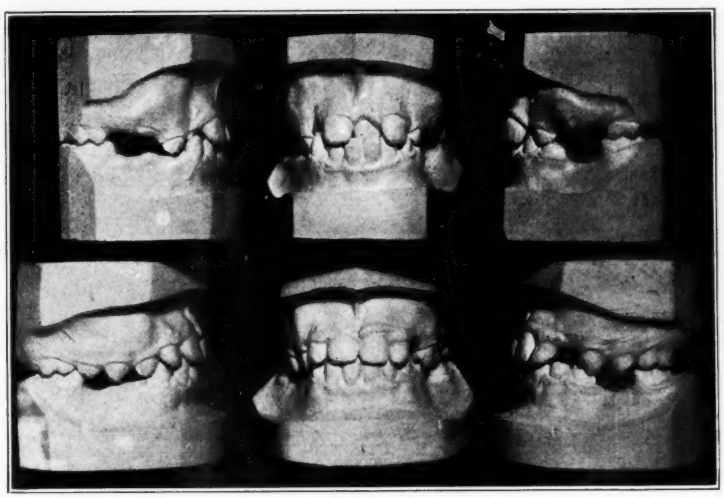


Fig. 6.

of movement, in other words, to a movement labiodistally or toward the canine zone. This was accomplished by removing the lateral band, unsoldering the clip attachment and soldering on a simple eyelet. The band was recemented, and the end of the labial auxiliary spring was formed into an eyelet. A thread was then used to engage the eyelet on the lateral band and the eyelet on the auxiliary spring in such a manner as to pull labially and distally. Cement having fallen off the molar occlusal surfaces, it was renewed September 29, 1931.

On October 6, I again had to grind off more of the point on the lateral incisor. On October 8, I again had to renew the cement on the occlusal surfaces of the maxillary molars to prevent traumatic occlusion of the lateral and to keep the bite open.

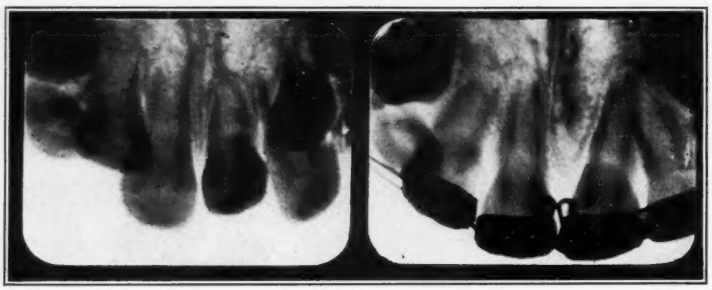
On October 27, I removed the maxillary left lateral band and soldered on a spur mesiolabially for rotation with a ligature attached directly to the alignment wire, the auxiliary wire spring being now discarded.

On November 10, I placed a solder button on the alignment wire to increase the torsional pressure against the distolabial surface of the lateral.

Because of various pressures the lateral elongated somewhat, and exhibited considerable motility. This condition subsided as the tooth settled into correct position.

X-ray pictures were taken November 20, which showed the case progressing favorably.

On November 20, I removed the alignment wire and all the bands. Hooks were soldered to the lateral bands at the mesiolabial angles. The bands were recemented and connected by a twisted stainless steel ligature wire across the labial surface of the central incisors. The reapplication of this wire eliminated the space remaining between the incisors due to the thickness of the central bands which had been removed. It also acted as a retainer which allowed the distolabial angle of the maxillary left lateral to rotate distally, because of the tendency



A B

Fig. 7.—*A*, x-ray picture taken before treatment. Note size of supernumerary central incisor. *B*, x-ray picture taken after treatment.

of this tooth to relapse to its former lingual malposition. Any complete relapse, of course, would be effectually prevented by the mandibular incisors.

The prognosis is considered favorable.

No soreness was complained of at any time during the treatment. This may be due to the extent of tissue development at this age, or we may say to the early treatment of the case. The patient exhibited no symptoms of nervousness at any time in spite of the poor case history.

The treatment was started in March, 1931, and was completed November, 1931, except for a slight rotation of the maxillary left lateral which may correct itself.

I wish to acknowledge with thanks to Dr. Harle Parks of Atlanta, Ga., the use of the special photographing box for taking six views of two casts all on one film.

XUM

PROGRESSIVE GUIDE PLANE

By A. B. Brusse, D.D.S., and J. L. Carman, D.D.S., Denver, Colo.

Professors of Orthodontia, University of Denver

THIS appliance is a modification of Dr. Oliver's guide plane. It has the same working possibilities and also the added advantage of a gradual progressive movement forward of the crib or plane.

Fig. 1 shows the progressive guide plane. The construction of the progressive attachment is as follows: A round tube (5/16 by 0.064 by 0.040) is

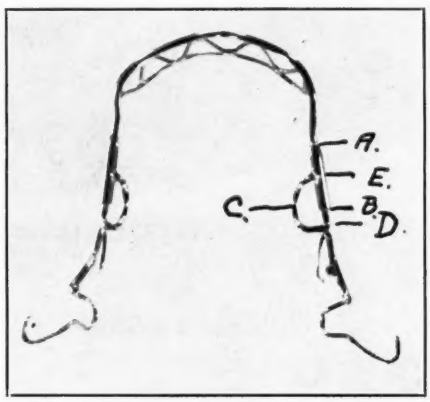


Fig. 1.

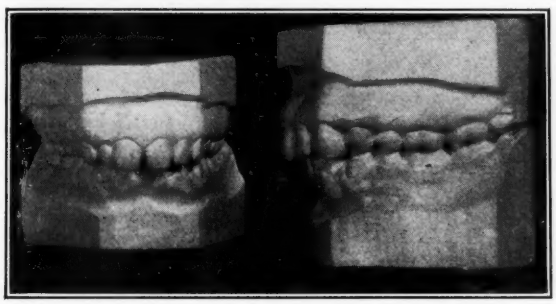


Fig. 2.

soldered to the base wire at *A*. At *E*, loop of 0.036 wire is attached to the tube. The other end of the loop is soldered to the base wire at *D*. This leaves the section of the base wire between *A* and *B*, which is enclosed in the tube, loose to slide free in the elongating adjustment of loop *C*. The loop is adjusted with a pair of wide, flat-nose pliers.

Fig. 2 illustrates a case of bilateral distoclusion. A progressive guide plane was used, eliminating the use of intermaxillary elastics.

Fig. 3 shows the appliances used in the case. Fig. 4 shows the case one year after treatment was started.

The guide plane has become a very useful method of treatment of distoclusion cases where it is necessary to open the bite. In our first use of the appliance we were discouraged in this method of treatment because of the fact that it was used as a bite plane. Dr. Oliver corrected us by showing that the crib should assume a more vertical position and be used as a guide rather than a bite plane. The lingual surfaces of the mandibular incisors contact the plane rather than the incisal edges.

Plane labial arch of 0.040 should be used in combination to avoid distal movement of maxillary molars and forward movement of incisors. The pro-

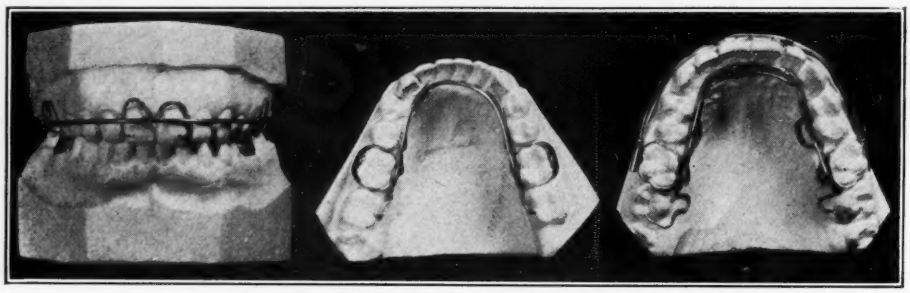


Fig. 3.

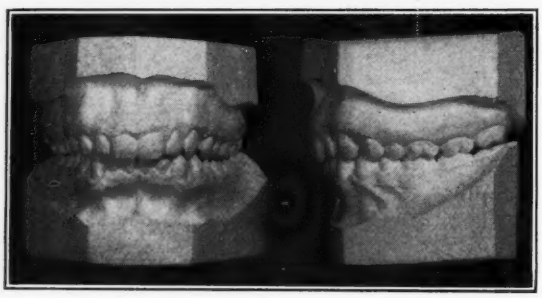


Fig. 4.

gressive feature can also be used in correcting unilateral cases by placing the loop on only one side.

We report this method of treatment because of the spectacular results obtained in our distoclusion cases presenting deep overbite where we have substituted the progressive guide plane after failure with the usual method of intermaxillary elastics, arches and bands. Any method of treatment that will eliminate elastics and the necessity of depressing incisors has value and can be used until some future time when our cases are treated by the endocrinologist and the dietitian.

XUM

MINUTES OF THE THIRTIETH ANNUAL MEETING OF THE AMERICAN SOCIETY OF ORTHODONTISTS*

TUESDAY MORNING SESSION

(April 21, 1931)

The first business session of the Thirtieth Annual Meeting of the American Society of Orthodontists, held at the Jefferson Hotel, St. Louis, Mo., April 21 to 24, 1931, convened at ten forty-five o'clock, President Harry F. Kelsey presiding.

President Kelsey.—The next order of business is one in which I will have to ask the President-Elect to preside.

[President-Elect Baker took the chair.]

President-Elect Baker.—We shall now hear the address of the President, Dr. Harry E. Kelsey.

[President Kelsey read his address.]

President-Elect Baker.—If there is no objection I shall follow the usual custom and appoint a committee to consider the President's Address and to report on it at a later session. This committee will be: Dr. William E. Flesher, Dr. R. W. Noland, Dr. George R. Moore, Dr. Henry F. Hoffman, Dr. Leuman Waugh.

[President Kelsey resumed the chair.]

President Kelsey.—The report of the Board of Censors will be given by Dr. Paul G. Spencer, the Chairman of the Board of Censors.

Dr. P. G. Spencer.—The following thirty-nine applications for membership in this Society have been passed upon favorably by the Board of Censors:

Allen E. Bishop, Seattle, Wash.
Wm. J. H. Benson, Milwaukee, Wis.
Horace Colton Bliss, Toronto, Ontario.
George S. Calloway, New York, N. Y.
Herman W. Cook, Miami, Fla.
W. J. Fitzpatrick, Miami, Fla.
Wilson R. Flint, Pittsburgh, Pa.
Bruce D. Foster, Detroit, Mich.
Harry C. Morrow, Des Moines, Iowa.
William Mullin, Chicago, Ill.
Edward G. Murphy, New York, N. Y.
J. E. Richmond, Eugene, Ore.
Aubrey P. Sager, Philadelphia, Pa.
William J. Speers, Boston, Mass.
Richard H. Stucklen, Wilmington, Del.
Frank M. Taylor, Pomona, Calif.
Milton Scott Tucker, New York, N. Y.
Aldys Gray, Los Angeles, Calif.
L. M. Christie, Washington, D. C.
E. O. Kingsborough, Joplin, Mo.
Joseph L. Selden, Louisville, Ky.
R. B. Coomer, Louisville, Ky.
Wm. Broaddus Massey, Richmond, Va.
J. Elon Rose, Iowa City, Iowa.
John Davidson Newell, Wilmington, Del.
A. S. Bumgardner, Charlotte, N. C.
L. W. Gange, St. Paul, Minn.
Max R. Kadesky, Dubuque, Iowa.
George C. Timmis, Arkon, Ohio.
Lester H. Tate, Canton, Ohio.
Frederick C. Allen, Boston, Mass.
James D. Glerum, Grand Rapids, Mich.
Richard A. Lowy, Newark, N. J.
Richard Summa, St. Louis, Mo.
G. Fred Hale, Raleigh, N. C.
Roy D. Mitchell, Atlanta, Ga.
Leland T. Daniel, Orlando, Fla.
Wm. Paul Hoffman, Washington, D. C.
Stephen C. Hopkins, Washington, D. C.

Generally speaking the membership has cooperated well in assisting the Board to secure additional data on all applications. However, some, we feel, have misunderstood our efforts. Not in any form of apology, I would remind you that the Board was only attempting to carry on to the best of its ability the instructions of the Society in securing data about applicants from members near to the applicant, in addition to the formal endorsers. The Board did not have any personal desires in the matter, and certainly did not derive pleasure in having to send several hundred letters of inquiries and replies. The names just read have been fully investigated and have excellent endorsements, and the members of the Board believe they are well qualified for and eligible to membership in this Society. We have not as yet passed upon all

*Reports received for publication are published herein.

the applications. Others will be presented for your consideration before the close of the meeting.

Section 4 of the Constitution states that all applications reported favorably by the Board shall be promptly voted upon by the Society. Said vote shall be by written ballot. I await the Society's desires in the matter.

The Board has audited the books of the Treasurer, and finds them correct. His records have been audited by a certified public accountant.

The Board has complied with Section 4, Article 6, and the ballots have been tabulated with the following results:

President-Elect: Dr. W. E. Flesher, Oklahoma City, Okla.
Secretary-Treasurer: Dr. Claude R. Wood, Knoxville, Tenn.
Librarian: Dr. Abram Hoffman, Chicago, Ill.
Member of Board of Censors: Dr. Carl B. Mott, Asheville, N. C.

The tabulated ballots are now in the hands of the Secretary for your inspection if you desire.

Working with the President and a number of our members, and with the help of the Local Committee, the Board of Censors has endeavored to the best of its ability to prepare a program that will be of practical value to all. I move that the printed program which has been mailed to you be accepted as the order of business during this meeting with such changes as the President sees fit to make.

P. G. Spencer, Chairman,
J. D. McCoy,
W. A. Murray.

Dr. F. M. Casto.—I move that the report be received. I believe we shall have to have another motion in regard to the election of the members.

Dr. Martin Dewey.—I second the motion.

[The motion was put to a vote and carried.]

Dr. Casto.—I move that the rules be suspended and that the Secretary be instructed to cast the ballot for the election of the list of names recommended by the Board of Censors.

Dr. Abram Hoffman.—I second the motion.

Dr. W. C. Fisher.—May we have it explained why the ballot will not take the regular course?

President Kelsey.—It was merely to save time. We could ballot on all these members, but I think it is rarely done. Usually the Society is glad to elect them as reported. That is the only reason.

[The motion was put to a vote and carried.]

Dr. Martin Dewey.—The Chairman of the Board of Censors recommended that this program be made the order of business of this Society. I make that as a motion.

Dr. O. A. Oliver.—I second that motion.

[The motion was put to a vote and carried.]

Dr. Martin Dewey.—A committee has been appointed to bring in a report on the Constitution and By-Laws. The report of this committee has been carefully examined by a great many men in this Society, making certain proposed changes necessary for the conduct of this Society. In order that the matter have due consideration, I therefore move that the report of this committee be made a special order of business at four-thirty this afternoon.

Dr. Abram Hoffman.—I second the motion.

[The motion was put to a vote and carried.]

Dr. W. C. Fisher.—Mr. President, there is a matter that should be passed on by you at this particular moment in order that it may be taken care of during the meeting. I refer to a special Necrology Committee to prepare suitable resolutions on the death of Dr. Thomas Hinman. I move that you appoint on that committee Dr. Casto, Dr. Eby as Chairman, Dr. Clint Howard and Dr. Oren Oliver, to bring in suitable resolutions sometime during the sessions.

Dr. W. E. Flesher.—I second the motion.

[The motion was put to a vote and carried.]

XUM

President Kelsey.—I should say that the Secretary, after some interruption, would cast the unanimous ballot for the election of the members.

Secretary Wood.—It gives me pleasure to cast the ballot for the thirty-nine applications that the Chairman read.

President Kelsey.—You have heard the Secretary report the unanimous ballot for these members, and I declare them elected.

The next order of business is the report of the Secretary-Treasurer, Dr. Claude Wood.

Secretary Wood.—

SECRETARY'S REPORT

Active members	355	
Honorary members	8	
Army and Navy	5	
Total	368	
Applications received since last meeting to date		10
Members dropped for nonpayment of dues		3
Members owing dues and assessments (Amounting to $345.00)		16

TREASURER'S REPORT

Cash on hand, April 15, 1930			$ 5,696.18
Receipts			
Registration fees, 1930 meeting		$ 900.00	
Dues and assessments		7,965.00	
Application fees, 37 at $10.00		370.00	
Interest on bank account		133.33	
Income from exhibits		650.00	
Martin Dewey (for copy minutes)		10.00	10,028.33
Total			$15,724.51
Expenses			
The following relates to the budget adopted:			
1930	*Essayists and Clinicians*		
April 22	George B. Winter	$ 31.74	
April 26	R. C. Brumfield	112.80	
April 26	Royal S. Haynes	227.36	
April 26	L. B. Mendel	236.67	
April 26	T. Wingate Todd	150.00	
May 6	L. N. Menefee	125.00	
May 16	Edward H. Hatton	100.00	$ 983.57
1930	*Reporting*		
May 16	Master Reporting Company		356.45
1930	*Local Arrangements*		
April 16	Oren A. Oliver	$ 100.00	
April 28	Oren A. Oliver	290.00	390.00
1930	*Printing*		
April 22	McQuiddy Printing Company	$ 16.50	
April 22	Foster & Parke Company	5.50	
June 23	Knoxville Lithographing Co.	48.80	
Sept. 29	Knoxville Lithographing Co. (Bus. Proceedings and Stationery to Coms.)	294.40	
April 2	Eveready Letter Shop (Nashville)	28.00	
April 6	Knoxville Lithographing Co.	242.00	
April 6	Letter Shop	2.65	637.85
1930	*Fixtures*		
June 23	Knoxville Lithographing Co. (Filing Cabinet authorized by Executive Council.)		131.00
1930	*Incidentals*		
April 11	Charles R. Baker	$ 20.75	
April 22	Nashville City Transfer Co.	41.15	
April 22	H. F. French	13.00	
May 16	Frank M. Casto	4.65	
May 19	Sundries	15.00	
May 22	J. E. Lutz & Company (Premium on Surety Bond)	35.00	

June	5	Harvey Stallard (Return of Application Fee)	10.00	
Dec.	27	Cash for stamps	20.00	
1931				
March	12	Sundries, stamps for mailing programs	25.00	
March	25	Dr. Abram Hoffman	10.30	
April	9	Sundries, stamps, petty cash	25.00	219.85
1930		*Board of Censors, for 1930 Meeting*		
April	10	L. M. Waugh	$ 143.64	
April	14	Paul G. Spencer	13.15	
April	16	Noel Hotel	48.85	205.64
1931		*Board of Censors, for 1931 Meeting*		
March	2	W. A. Murray	$ 185.00	
March	2	J. D. McCoy	133.88	
March	2	Paul G. Spencer	171.85	490.73
1930		*Clinics*		
April	22	George C. Dury Company	$ 30.00	
April	26	C. W. Hoffer	38.50	68.50
1930		*Exhibits*		
April	9	Bastain Brothers	$ 112.00	
April	16	L. F. Pogue	18.75	
April	22	John T. McTigue Company	63.25	194.00
1930		*Contingent Fund*		
		O. A. Oliver, President		125.97
1931		*Honorariums*		
March	25	Paul G. Spencer (Chairman, Board of Censors)	$ 100.00	
March	25	Claude R. Wood (Secretary-Treasurer)	500.00	600.00
		Total		$ 4,066.92
1931		*Research Fund University of California*		
Feb.	18			3,000.00
1931		*Special Contribution to Second International Congress*		
Feb.	26	Membership fee to Second International Congress		10.23
March	6	E. D. Barrows		1,000.75
		Total		$ 8,414.54
		Cash in bank		7,309.97
				$15,724.51

(Signed) CLAUDE R. WOOD, Secretary-Treasurer.

Dr. W. E. Flesher.—I move the report be received.

Dr. Martin Dewey.—I second the motion.

[The motion was put to a vote and carried.]

President Kelsey.—The next order of business is the report of the Librarian, Dr. Abram Hoffman.

Dr. Abram Hoffman.—The duties of the Librarian during the past year have been anything but arduous and have consisted in the main of sending copies of the Transactions to twenty-eight individuals and institutions. These copies have been in varying numbers of from one to a dozen of the various years of issue and are in addition to the regular routine of the mailing of the Transactions to our members and organizations upon our mailing list.

There have been no contributions to our library during the past year.

The following is a list of the Transactions now on hand and the number of copies of each year as indicated:

1905	9	1921	2
1909	3	1924	48
1910	6	1925	55
1911	16	1927	55
1916	6	1928	77
1919	28	1929	53
1920	191		

These are available at the cost of mailing for all who desire them, until the supply is exhausted.

Last year there was assigned to the Librarian the duty of compiling a historical record of the members of the Society. Unusual pressure of business from sources other than my official duties has prevented my doing more than making a start upon this task. If a record of this nature is to be started, it seems to me that it should be rather complete in its character, and the printed forms to be filled in should be of such a nature that additional data could be added from time to time. While the suggestion that the Librarian be charged with this added duty was made in a somewhat jocular way, nevertheless, if records of this nature are to be compiled, they should be sufficiently complete to be of value as the years go by.

A suggested form has been presented to the Executive Committee, and in due course copies will be sent to the members of the Society for completing the data requested. When you receive these forms, may I request that they be filled in and returned to the Librarian promptly?

Respectfully submitted,

(Signed) ABRAM HOFFMAN, Librarian.

This is a proposed form of about twenty-one questions to be answered, and there will be other questions added to this submitted list. There will be a place for a small photograph, and I have added a place for your usual signature as you would like to have it appear if it is to be reproduced or lithographed. After the Executive Committee has approved this form it will be sent to the members, and it should be filled in promptly and returned with all of the data asked for.

My present plan contemplates making a copy of this form which will be sent to the membership, making this copy on the typewriter so that it will be plainly legible and so that it can form a part of the permanent record of this Society. If any of you have suggestions that you think should go on this printed form (the form may be obtained from the Secretary or me), I personally should be very glad to receive those suggestions.

President Kelsey.—You have heard the report of the Librarian.

Dr. F. M. Casto.—I move it be received.

Dr. O. A. Oliver.—I second the motion.

[The motion was put to a vote and carried.]

President Kelsey.—We are indebted to you, Dr. Hoffman, for your very comprehensive report. It staggers me even to contemplate the work you are mapping out for yourself, but it will be a wonderful thing for the Society. It may be the death of you.

Secretary Wood.—It is recommended by the American Board of Orthodontia that Dr. Albert H. Ketcham fill out the unexpired term of Lloyd Lourie, one year, and that Dr. Frank Casto be elected for a period of seven years.

Dr. W. H. Ellis.—I move that the report of the American Board of Orthodontia as given by our Secretary and Treasurer be accepted and that the suggestion as made be officially recognized, in other words, that Dr. Casto go on the Board for seven years and Dr. Ketcham for one year.

President Kelsey.—These nominations were made by the Board, but they will not be acted upon. They are simply announced at this time. They will be acted on at the next business meeting tomorrow morning.

Dr. W. H. Ellis.—If I am out of order I am sorry. I made the motion at the suggestion of a member of the Board.

President Kelsey.—I think they are to be acted on tomorrow.

Permit me to make a correction of which I was aware when I read my address but failed to make at that time. I said that Dr. Angle was the founder of this Society. I meant to say he was one of the founders and its first President.

At this moment I am going to ask Dr. Pullen, a member of the special committee that was to prepare in memoriam resolutions in regard to Dr. Angle, to read the resolutions. Dr. Young, the Chairman of the committee, thought for a time he would be here, but he wrote me to make sure, and said if no member of the committee was here he would like to have the

Secretary read these resolutions. As Dr. Pullen is a member of the committee I should like to have him take charge and read them at this time.

Dr. H. A. Pullen.—Dr. Edward Hartley Angle was born in Herrick, Pennsylvania, June 1, 1855, and died in Santa Monica, California, August 11, 1930. He received his preliminary education in Canton High School, Canton, Pennsylvania, and was graduated from Pennsylvania College of Dental Surgery in 1878. He practiced first in Towanda, Pennsylvania, went to Minneapolis, Minnesota, in 1885, later moving to St. Louis, Missouri, where he specialized in orthodontia and where he remained until his retirement from practice.

Dr. Angle established the world's first Postgraduate School of Orthodontia in St. Louis, Missouri, in 1900, later moved it to New York, New York, then to New London, Connecticut, and still later to Pasadena, California, where it was officially closed in 1927.

It was due to Dr. Angle's efforts more than to those of any other man, that orthodontia became a distinctive specialty. He devoted himself to its upbuilding, not only by his personal example but also by prolific writing, and he was the first man to classify malocclusion. This effort was so successful that his classification is still used to a great extent, after more than thirty years.

Dr. Angle was an outstanding example of self-reliance, and many of his conclusions will undoubtedly be quoted, even after the youngest of the present-day orthodontists have joined him in the Great Beyond.

Dr. Angle was not only an author, but an artist and an idealist, whose inauguration of new and fundamental principles in orthodontia, and intensity and tenacity of purpose in the building up of higher standards in orthodontic science, art and esthetics, both in teaching and practice, gained for him the well-deserved epithet of "the father of modern orthodontia."

His contagious enthusiasm and ardent zeal in the upholding and dissemination of these high standards in orthodontia gained for him many mutual admirers all over the world, many of whom are members of this society.

WHEREAS, the American Society of Orthodontists, whose origin was inspired by Dr. Angle, has adopted the following resolutions, be it therefore

Resolved, That the members of the American Society of Orthodontists express their deep personal sorrow and regret in his passing, and be it further

Resolved, That a page be set aside in the permanent records of this Society for the spreading, with tender memories, of this brief historical sketch of his life, and be it further

Resolved, That an engrossed copy of these resolutions be sent to his family, and be it further

Resolved, That copies of these resolutions be sent to the Journals.

(Signed for the Society) J. LOWE YOUNG,
MILTON T. WATSON,
HERBERT H. PULLEN.

President Kelsey.—You have heard the report of the committee, including the reading of the in memoriam resolutions.

Dr. F. M. Casto.—I move that the resolutions be adopted and that the recommendations be complied with.

[The motion was seconded, put to a vote and carried.]

President Kelsey.—It has been suggested, and very properly, I think, that after the reading of the resolutions we have just heard it would be appropriate for the members of the Society to stand for a moment in honor of Dr. Angle. Will you all please arise.

[The audience arose and stood in silence.]

[The business session adjourned.]

TUESDAY AFTERNOON SESSION

(April 21, 1931)

The meeting was called to order by President Kelsey.

President Kelsey.—We have a very important matter for consideration which will not take very long. It is of interest to the members and I hope that as many will remain as can.

I shall ask the Committee on Revision of Constitution and By-Laws to make its report. I believe Dr. Casto is to present the report.

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Dr. F. M. Casto.—Last year at Nashville a committee was appointed to present to the Society for its consideration, a draft for a new Constitution and By-Laws. In developing this draft, the committee made a careful study of the old Constitution and By-Laws and the various amendments and standing resolutions that had been passed by the Society over a period of several years.

In the codification of these it was deemed necessary to make some changes and add some new articles. All of the points in relation to place and time of the annual meeting, officers, committees, membership (classes, eligibility, application and election), etc., in the old Constitution and By-Laws have been covered and clarified. The old Constitution and By-Laws were literally dissected. Those things which were in the Constitution that belonged in the By-Laws were placed there, and those things which were in the By-Laws and belonged in the Constitution were likewise placed there.

In the new draft the committee has attempted to correlate all of the parts of the Constitution and By-Laws, one with the other, and all parts that pertain to each one separately. In the draft of the Constitution the construction of the Society is clearly defined, and only those things are included which rightfully belong in a Constitution. In the draft of the By-Laws the administration of the rules and regulations which are to govern the Society and its members is also clearly defined. Nothing is included which is nonessential or impertinent.

There are three major changes recommended in the new draft.

First. The creating of an Executive Council consisting of a considerably larger group than the present Executive Committee, the purpose being that most of the minor business detail of the Society can be executed by it, and by the judicial exercise of the duties assigned to it, the business of the Society will be operated on a more efficient and satisfactory basis. The plan by which members are elected to serve on the Council, namely, the officers of the Society and the other members by the standing committees, makes it representative and democratic and safeguards the Society from the possibility of its becoming a self-perpetuating or autocratic body.

[That has reference to the Executive Council.]

It should and will, in the opinion of the committee, always present a cross-section of the membership of the Society, both geographically and in personnel.

Second. The second major change is in the plan of the election of officers and the nomination of members to serve on the standing committees. The officers are to be nominated as heretofore, but are to be elected by the members present immediately after the nominations have been made, instead of by a mail ballot sometime previous to the following annual meeting. The nominations for members to serve on the standing committees are to be made by the Executive Council of the President-elect, as the case may be, and are elected by the members present immediately after the nominations have been presented. It is the opinion of the committee that this plan will be more satisfactory and better adapted to the Society at present.

Third. The Third major change is enlarging the number of standing committees and carefully defining the duties of each. This was done, first, because there is a definite field for each committee; second, to get a properly constructed Executive Council; and third, to interest more men in the affairs of the Society.

Fourth. The fourth major change was raising the initiation fee from ten to twenty-five dollars. It is the opinion of the committee that the initiation fee should be raised to twenty-five dollars, which will include the first year's dues after election to membership. The Society has now reached the point where membership is more valuable, and its standards can be maintained better by raising the initiation.

There are some minor changes:

First. The classification of membership, namely, active, associate and honorary. It is the opinion of the committee that an associate membership should be created to include only officers of the U. S. Army and Navy, who have been assigned to special orthodontic duty.

Second. The duties of the Board of Censors have been divided, some have been delegated to other committees and some to the Council. This had to be done in order to coordinate the set-up between the committees, the Council, and the Society.

Third. All amendments to the Constitution and By-Laws after presentation to the Society, must be referred to the Committee on Constitution and By-Laws, by it to the Executive Council,

and thence to the Society before final action can be taken. It is the opinion of the committee that such a procedure will prevent amendments which may be in conflict with other parts of the Constitution and By-Laws being voted on or adopted by the Society. It will also afford an opportunity for more consideration on the part of a large group before being presented to the Society for final action.

The committee has given this matter very careful consideration, which has required time and energy, and its deductions and conclusions have been the result of a thorough analysis of the whole problem.

The present as well as the future welfare of the Society was taken into consideration, and an attempt was made to present a draft which would best serve the interests of all concerned. All of the related parts, both in the Constitution and By-Laws, have been coordinated and all points have been clarified, defined and made comprehensive.

It is the wish of the committee that the members give consideration to this draft in its entirety; study each part as it is related to another, and before advocating a change in a single article, section, clause or paragraph be certain that it is not in conflict with some other part.

In submitting this draft of a new Constitution and By-Laws, the committee believes that its adoption with possibly some minor changes will mark an epoch in the history of the Society and will be one of its most constructive pieces of work for many years.

Respectfully submitted,

OREN A. OLIVER, Chairman,
CLINTON C. HOWARD,
FRANK M. CASTO.

I think those of you who are familiar with the present Constitution and By-Laws realize that it is archaic, that it is completely out of date so far as taking care of the business and the activities of this organization. It is confusing. There are parts of the Constitution which are in the By-Laws; there are parts of the By-Laws which are in the Constitution, and I think all of you realize from time to time, as we have had our meetings, that there has been a great deal of conflict, more or less dissension. We have not understood just what procedure to use in certain cases, and now we are presenting to you a complete draft which covers all of the points in a comprehensive way, so that it will speed the work of the Society, the business part of it, rather than hinder it as in the past.

The committee believes that if at this meeting it is consistent and just and right to adopt this new Constitution and By-Laws, it will be an advantage to the Society. However, that has to be done unanimously. If there are any objections on the part of any one, if you do not understand the new draft well enough to cast a vote intelligently upon it, then I should not do it. It can be passed now by unanimous vote; otherwise, it will have to lay over for a year and then be considered at the next annual meeting. That is exactly the situation. The committee itself has no object in having it passed now, except a constructive one. It does not make any difference to us what you do. We are only presenting it for the best interests of the Society and for its operation. There are no axes to grind or anything of that kind. I should feel myself, if I were a member and did not understand it well enough to vote intelligently upon it, that I should want to have more time in which to consider it. On the other hand, if I were satisfied and I knew that it would be a constructive thing to do and to the best interests of the Society and its members, then I should vote for it.

With those remarks, we can place it before you. I do not know whether you want to have it read now or whether you will lay it on the table.

Dr. M. Dewey.—I move that this Constitution be read.

Dr. B. L. Hyams.—I second the motion.

President Kelsey.—All those in favor will please signify by saying "aye"; those opposed "no". The "ayes" seem to have it.

Dr. W. C. Fisher.—I call for a division on that.

President Kelsey.—There is a division called for. All those in favor of Dr. Dewey's motion will please rise. Those opposed to Dr. Dewey's motion will please rise. There are 36 in favor of Dr. Dewey's motion and 19 opposed to it.

[Dr. Casto read the Constitution.]

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Dr. W. C. Fisher.—I now move that this copy of the new Constitution and By-Laws as presented by the committee and read by Dr. Casto, together with the unread By-Laws be printed, and a copy sent to every member in good standing, and that suitable time be allotted at the next annual meeting for its proper consideration.

Dr. E. Bach.—I second the motion.

[The motion was put to a vote and carried.]

Dr. L. M. Waugh.—That means this committee is going to serve us this year. It does not mean it is through but is continued.

Dr. M. Dewey.—The committee ceases as soon as this administration goes out of business.

Dr. L. M. Waugh.—I move that you appoint the same committee to serve for another year.

Dr. I. B. Stilson.—I second the motion.

[The motion was put to a vote and carried.]

President Kelsey.—It will give the President a great deal of pleasure to do it. I am sure it will give Dr. Baker as much pleasure.

Dr. W. C. Fisher.—This Society can order that committee continued. That is perfectly all right.

President Kelsey.—The Society has already continued it by its motion.

[The meeting adjourned at five-thirty o'clock.]

WEDNESDAY MORNING SESSION

(April 22, 1931)

The meeting convened at ten-thirty o'clock, President Kelsey presiding.

President Kelsey.—Will the meeting please come to order?

Our first order of business is the report of the Executive Committee. The Chairman is not quite ready to report so that will be made later today.

We shall first have the reading of the minutes by the Secretary.

[Secretary Wood read the minutes of the sessions held April 21, 1931.]

President Kelsey.—You have heard the reading of the minutes. What will you do with them?

Dr. A. Hoffman.—As a matter of clarity, I would suggest that where reference is made to the memorial resolutions, the name of Dr. Edward H. Angle be inserted.

President Kelsey.—Are there any other corrections?

Dr. A. Hoffman.—I move the adoption of the minutes with the revision.

[The motion was regularly seconded and carried.]

President Kelsey.—I wish to announce that the appointment of the Necrology Committee to take the place of the regular members of the Standing Committee will be the same committee as appointed for resolutions on Dr. Hinman's death.

Dr. Eby is Chairman of that committee. If any of those men are here, I hope they will get their data from Dr. Wood, the Secretary, who has collected it from different sources. We hope to have the report from them before the close of the meeting.

WEDNESDAY AFTERNOON SESSION

(April 22, 1931)

The meeting was called to order by President Kelsey.

President Kelsey.—I want to take the liberty at this time to repair an omission. A final paragraph in the President's Address was left off. He desired to thank the officers, the Board of Censors, and all the members of the various committees who have made this meeting such a success, to thank them most heartily for their cooperation and to tell you that the success of this meeting, which I think you will all admit, is due to their splendid efforts. I also want at this time to take the opportunity to thank Dr. Gorman for attending so efficiently to the lights.

[President-Elect Baker took the chair.]

President-Elect Baker.—We shall have a special order of business for five minutes to allow Dr. Casto to take the floor, if there are no objections.

Dr. F. M. Casto.—In 1914 at the meeting of the American Society of Orthodontists in Toronto, Dr. Ray Robinson of Los Angeles made a presentation before the Society in which

he presented the description of an appliance which embodied in it some of the basic principles for tooth movement which have now been incorporated or embodied in certain patents and commercialized. At that time Dr. Robinson offered to give to the American Society of Orthodontists letters patent covering the principles which he had developed in what he termed a new appliance. Any of you may familiarize yourself with that appliance if you will look in the proceedings of that meeting, 1914, at Toronto. The Society took no action upon his offer to turn over the letters patent to it. Since that time, to my knowledge, there has been no offer on the part of any member of our Society to present letters patent upon mechanisms or devices or whatever it may be that have been patented in the meantime.

There comes to us today an offer from a young man in Pittsburgh who has developed and perfected a wire testing device, and it is his desire to present to the American Society of Orthodontists these letters patent. I will read his letter to you:

"It is my wish, through my friend, Dr. Frank M. Casto, to give to the American Society of Orthodontists patent number 1714169, with the rights and privileges therein stated, for a period of seventeen years as stated in the form, as registered, to be used and changed by the officers and members of the American Society of Orthodontists in any research related to the instrument that they might undertake.

"I request that the patent be filed in the library of the American Society of Orthodontists, therein to remain, and to be used as a reference by any member, or members, desiring to further and carry on research with wire testing devices.

"I ask, however, that any research related to the patent as given, be given to the members of the American Society of Orthodontists without obligation to them, also that any member furthering research with the rights as stated in the patent be subject, when in question, by a decision of the members of the American Society of Orthodontists at their yearly meeting, and that any and all research with the instrument be in no way commercial. That the instrument not be manufactured by any company, or concern, unless approved by the members of the American Society of Orthodontists.

"That, if at any time during the period of protection of the patent as granted by the Government, it is either directly or indirectly involved as a necessary part in testing dental or commercial products, that any and all money realized in the form of payment for its use, or uses, be given the American Society of Orthodontists and that said money be applied to the established research fund to be used in furthering orthodontic research, also that any fees or royalties as might be realized be set by the members of the American Society of Orthodontists at their yearly meeting.

"In conclusion, it is my thought in giving the instrument not in any sense to do so with a view of personal gain, but solely and purely with a desire to help in passing on to the members of the American Society of Orthodontists any relative value the instrument might have in the progress of our specialty. In the final and with no attachments, unless those herein stated be broken, I give to the American Society of Orthodontists, through my friend, Dr. Frank M. Casto, the instrument as herein stated."

(Signed) RUSSELL E. IRISH.

I move, Mr. President, that this offer be accepted by the American Society of Orthodontists, and in accepting it that we express to Dr. Irish our sincere gratitude for this contribution.

[The motion was regularly seconded by several.]

President-Elect Baker.—You have all heard the motion. Is there any discussion?

[The motion was put to a vote and carried.]

Dr. F. M. Casto.—Will Dr. Irish please come forward?

Dr. R. E. Irish.—I have nothing to say. I am so gratified that you are accepting it. I have not anything further to say.

[President Kelsey resumed the chair.]

President Kelsey.—There is a matter I want to bring before the Society for a moment which has to do with something that came up this morning. In the paper by Dr. Taylor request was made from the Bureau of Standards that a committee for contact between the

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Bureau and this Society, in the carrying out of this experiment regarding wrought alloys, be appointed. If it is agreeable to the members, I feel that the Research Committee of this Society would be an appropriate committee to attend to that. As I do not know whether I have the authority to make that appointment, I should be glad if any one would make a motion to that effect.

Dr. H. U. Barber.—I make such a motion.

[The motion was regularly seconded, was put to a vote and carried.]

President Kelsey.—The first order of business is the report of committees. I believe that Dr. Ketcham, as Chairman of the Research Committee, has a report to make.

Dr. A. H. Ketcham.—(1) The Research Committee begs to report first on the research conducted by Dr. John A. Marshall at the Hooper Foundation for Medical Research, University of California, as follows:

Dr. John A. Marshall.—

REPORT FOR THE RESEARCH COMMITTEE OF THE AMERICAN SOCIETY OF ORTHODONTISTS

At the request of Dr. Albert H. Ketcham, I present herewith a Progress Report upon the research dealing with apical absorptions of permanent teeth.

The financial statement prepared by the Office of the Comptroller of the University is attached hereto. You will note there is an unexpended balance of $3551.90 on March 1, 1931. A statement as to the allocation of this fund will be made later by Dr. Karl Meyer, and the committee appointed to act with him in the matter.

On February 12, 1930, there was held at the Clift Hotel in San Francisco, a committee meeting, at which was discussed the procedure to be followed for the ensuing year. At that time I reported that it seemed advisable to work up all of the material which we had collected during the past two years, and present a detailed report upon it, before additional animals were purchased, and further experimental details outlined.

This procedure has been followed exactly. The work this year has suffered a set-back, however, due to a very unfortunate accident occurring in the laboratory on March 11, 1930. At that time some staining material which had been used for the preparation of tissues exploded violently, and Miss Noble, my assistant, lost the sight of one eye. The work was suspended for a time, until the outcome of the explosion could be determined. It has been necessary, therefore, to secure from time to time additional help so that the work in the laboratory would not drag.

Work has been completed on monkeys Nos. 81, 2, 4, 35, 119, 081.

There still remain monkeys Nos. 3, 6, 12, 121, 183, 379, 299, 90, 112, 476.

Work on these animals will occupy fully our time for the next academic year.

There have been presented to the American Society of Orthodontists two papers, one read at Estes Park, one at Nashville, and a third is prepared for the St. Louis meeting. In addition, a review of the work has been made before the Chicago Dental Society and the American Dental Association—this being in accordance with the agreement originally made at the Estes Park meeting between the Board of Censors of the American Society of Orthodontists and me. It is understood that whatever material is presented before the American Society of Orthodontists should be published as soon as possible in whatever journal they designate. Other reports may be published at the discretion of the author. This agreement has been strictly adhered to by both sides, and a confirmation of it is requested.

Preliminary work on this problem was reported in an article entitled: "A Comparison of Resorption of the Roots of Deciduous Teeth With the Absorption of Roots of Permanent Teeth Occurring as a Result of Infection," Pacific Dental Gazette, October, 1928.

The published reports to date on the work done are as follows: "Studies on Apical Absorption of Permanent Teeth, Part I," INTERNATIONAL JOURNAL OF ORTHODONTIA, ORAL SURGERY AND RADIOGRAPHY **16**: 1, 1930. "Studies on Apical Absorption of Permanent Teeth, Part II," INTERNATIONAL JOURNAL OF ORTHODONTIA, ORAL SURGERY AND RADIOGRAPHY **16**: 1035, 1930. "Root Absorption of Permanent Teeth. A Study of Bone and Tooth Changes Incident to Experimental Tooth Movement," Journal American Dental Association **17**: 1221, 1930. "Osseous Changes Due to Pressure Trauma," Proceedings Society Experimental Biology and Medicine **27**: 270, 1930.

At the present time the evidence points to the fact that the greatest amount of apical absorption is found in animals on deficient diets and in which the stresses maintained have been relatively severe.

Respectfully submitted,

(Signed) JOHN A. MARSHALL.

STATEMENT OF INCOME AND EXPENDITURE, DENTISTRY ORTHODOTIC RESEARCH DONATION

As of March 1, 1931

Income

1927/28	$ 6,037.50
1928/29	

Of this original amount, $6,037.50, there was donated $1,500.00 by individual orthodontists on the Pacific Coast. Furthermore, $800.00 additional was donated by the University of California.

1929/30	3,000.00
1930/31	3,000.00

In addition the University has donated $1,200.00 in both academic years, a total of $2,400.00 in these two years.

Total income	$12,037.50

Expenditures

	Assistance	Supplies	Expense	Equipment	
1927/28	$.....	$ 182.20	$ 350.00	$ 415.00	
1928/29	1,687.44	509.81	280.18	96.37	
1929/30	1,469.98	667.10	380.86	232.72	
1930/31*	1,398.58	369.83	374.93	70.60	
	$4,556.00	$1,728.94	$1,385.97	$ 814.69	
			Total expenditure.....		$ 8,485.60
			Balance unexpended.....		$ 3,551.90
			Liens to July 1, 1931....		325.00
			Balance		$ 3,226.90

Dr. A. H. Ketcham.—(2) McCullom: Swine feeding experiment conducted at the American State Agricultural Experimental Farm, under the patronage of the American Dental Association, and aid of the Bureau of Dental Staff of the Johns Hopkins Hospital.

Those interested may consult the proceedings of the International Association for Dental Research, published in the Journal of Dental Research, for June, 1928. Doctors Klein, Howe, McCollum and Ketcham gave a brief account of the inception and objects and character of the experiment. Dr. Klein, who is doing the histologic and laboratory work on the McCollum experiment, read a paper before the American Dental Association which was published, "Relation of Diet to Skeletal Development of Swine" in Journal of American Dental Association, May, 1930.

(3) The five-year research on dental problems being conducted by the Merrill-Palmer School of Detroit under the direction of Samuel J. Lewis. A description of the new work. A report on the conference held in Detroit September 7 and 8, 1930, may be found in the Journal of the American Medical Association issue of November 29, 1930.

"ORTHODONTIC RESEARCH GROUP SPONSORED BY CHILDREN'S FUND OF MICHIGAN AND MERRILL-PALMER SCHOOL

"After completing a five-year study on the growth of the teeth and dental arches on a group of 200 preschool children at the Merrill-Palmer School in Detroit, the Children's Fund of Michigan allowed a grant of money for the furtherance of this work, to include an enlarged

*Eight months—to March 1, 1931.

group of children. This grant allowed the formation of a full-time paid staff to gather material for this work. This staff includes a dentist, a radiographer, a dental hygienist, and a secretary, under the direction of a chief of staff. The grant of money allowed us to buy three dental x-ray machines, a Stanton surveying machine, and various other equipment. The Merrill-Palmer School furnished quarters and the services of their staff.

"Since May, 1930, we have enlarged our group to 500 children on whom we make yearly impressions, measurements and x-ray examinations. Included in the x-ray examinations are the teeth, jaws, hands, elbows and shoulders. Bite-wing films of a special size are taken twice yearly of the posterior deciduous teeth. A group of 150 babies ranging in age from birth to three years are under monthly examination to study the relation between the eruption of the deciduous teeth and growth.

"Besides the charting of the stages of eruption of the deciduous teeth, we are making x-ray pictures of the children's hands, elbows and shoulders once every two months. Two members of the staff from the department of physical growth are assisting us in measuring and weighing these babies once every two months. They are also making a record of the disease and dietary history for further correlations. It is our hope that the authorities will allow Dr. E. V. McCollum to institute a dietary regime as soon as the babies are weaned, in an effort to study the relation of diet to the teeth and jaw growth.

"We are now making a diet analysis on 25 of the children on whom we have made five or more yearly records of the teeth and dental arches. The diets will be analyzed as to the protein, fat, carbohydrate, calcium, phosphorus, iron and vitamins from a quantitative standpoint. We shall then correlate these with malocclusion, caries, attrition and habit. Dr. McCollum tells me that this is the first time that a quantative study has been made of diets in relation to dental conditions, and while only a preliminary one, it ought to have great significance. This study will be reported in London in July.

"We are in the process of making charts of the palates of the entire series in order to study growth, patterns, and changes. This study will not be completed until next year.

"Dr. Munblatt has been making a study of the incidence of caries in four groups of children and has found some very interesting data. This will be published next fall in the Journal of Dental Research. We are gathering a wealth of material that ought to supply us with studies for the next ten years. It is our hope that others who are interested will come to our institution and make use of this material which is being gathered in the interest of the entire dental profession. The Children's Fund of Michigan has just completed a new building which will house the research project, though the Merrill-Palmer rooms will be retained. A paper is in the process of preparation for the meeting in London in July."

(Signed) SAMUEL J. LEWIS.

(4) An investigation of the dentition of Eskimos of North America which Dr. Leuman Waugh conducted under the auspices of Columbia University in 1927 and then under the auspices of the United States Public Health Service in 1929-1930 will be shown by Dr. Waugh this evening following the banquet. Those interested may find the published reports of these studies by Dr. Waugh under title of "Nutrition and Teeth of the Labrador Eskimo," published under the auspices of Columbia University, International Journal for Dental Research, June, 1930. Also "Nutrition and Teeth of North Bering Sea and Arctic Alaska Eskimo," United States Public Health Service.

Dr. Waugh also gave a paper upon this subject at the annual meeting of the International Association for Dental Research held in Memphis, Tenn., last month. We expect that the research conducted by Dr. N. O. Taylor of United States Bureau of Standards into the properties of orthodontic gold alloys will be of great value to orthodontists as evidenced by his paper before this Society this morning.

Respectfully submitted,

Research Committee of the American Society of Orthodontists,

(Signed) A. H. KETCHAM, Chairman.

President Kelsey.—You have heard the report of the Research Committee. What shall we do with it?

Dr. R. P. Howarth.—I move it be accepted.

[The motion was regularly seconded, was put to a vote and carried.]

President Kelsey.—The next committee we have is the Inter-Relations Committee. Have we a report from them?

Dr. J. D. Eby.—There is no report from the Inter-Relations Committee for the simple reason we have not been called on to do anything.

I have a letter from the Chairman of the Second Orthodontic Congress who, through Dr. Fisher's office, have left their program open until after the meeting of the American Society of Orthodontists. They have requested all the clinical or scientific material that we can send over in the form of exhibits, which they would greatly appreciate. They hope there will be from fifteen to twenty-five contributions from this meeting. I wish all of you gentlemen who have clinics with you and could recast them in the form of scientific exhibits, would consider doing that. I think that Dr. Fisher and myself, with the knowledge and approval of the Society, will endeavor to visit the men on the program and see what we can do. We ask your cooperation.

President Kelsey.—The report of the Inter-Relations Committee is open for your consideration.

Dr. S. Riesner.—I move it be accepted.

[The motion was regularly seconded, was put to a vote and carried.]

President Kelsey.—Nomenclature Committee, Dr. Willett.

Dr. R. C. Willett.—The Nomenclature Committee begs to submit the following report:

It is a noticeable fact that much confusion still exists in the use of the most common orthodontic terms. Orthodontists are urged, in writing and in discussions, to conform as closely as possible to the accepted and approved terminology.

Many present-day writers are employing orthodontic nomenclature haphazardly, not using the same term throughout a single essay. We realize that in general literature the use of synonyms is desirable in order to avoid repetition, but in scientific writing it is preferable to use the correct word in describing a condition even though that word may appear several times in the same paragraph.

Quoting from Dewey, "For example, if we are going to speak of maxillary teeth, it is much better to use the word 'maxillary' consistently throughout the paper rather than use the word 'upper' as we very often do."

It has come to the attention of the Nomenclature Committee that in certain dictionaries and encyclopedias no reference is made to orthodontia, and that in others it is not clearly defined. The fourteenth edition of the Encyclopedia Britannica, 1929, must be credited with the most complete and acceptable reference to orthodontia.

In justice to the science of orthodontia, the committee believes that this matter should be brought to the attention of the publishers. In doing this, the definition to appear in dictionaries, and the more exhaustive explanation of the science of orthodontia for encyclopedias should be compiled by a competent committee.

Appended to this report is a list of the dictionaries and encyclopedias in which the word "orthodontia" appears and a list of those from which it is omitted.

Respectfully submitted,

(Signed) R. C. Willett, Chairman,
F. A. Delabarre,
B. G. DeVries, Secretary.

Dictionaries:

Funk & Wagnall's New Standard Dictionary, 1927, in Dental Surgery, "Mechanical treatment for correcting irregularity and faulty positions of the teeth."

Webster's New International, 1928, "That branch of dentistry treating of irregularity of the teeth; dental orthopedics."

The Concise Oxford Dictionary, 1929, does not give orthodontia, but says, "'Ortho' comb. form of Greek 'orthos' straight, in many scientific words with senses straight, rectangular, upright, right, correct."

Stedman's Medical Dictionary, 1928, "The straightening of irregularities of the teeth."

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Dorland's American Illustrated Medical Dictionary, 1925, "The department of dentistry which deals with the prevention and correction of irregularities of the teeth and malocclusion."

New International Encyclopedia, 1922, under heading "Dentistry" says, "Orthodontia, or the art of regulating or correcting malpositions of teeth, has recently developed into a distinct specialty, although some attention has been given to it by dentists ever since the latter part of the eighteenth century.

"At the present time some operators devote their whole attention to this branch of practice, and the results obtained by those who have the necessary mechanical ingenuity and diagnostic ability are extremely gratifying."

Not given in: Century Dictionary, 1911; Oxford or New English Dictionary, 1905; Chambers Encyclopedia, 1925; Nelson's Loose Leaf Encyclopedia, 1907; Americana Encyclopedia, 1927; Reference Handbook of the Medical Sciences Encyclopedia, 1923; Encyclopedia Britannica, Vol. 16, Ed. 14, 1929.

"ORTHODONTIA

"A special department of dentistry concerned with the prevention and correction of irregular and of malposed teeth. Orthodontic treatment is usually effected by means of the spring force of delicate wires attached to the teeth. The earliest attempt in the literature at systematic treatment of orthodontia was by Fauchard in 1728. In 1836 Kniesel published a special work on the subject. Between these two it was variously treated by several writers in the field of mechanical dentistry (Bunon, 1742; Burdot, 1757; Fax, 1803; Delebarra, 1806). At the beginning of the twentieth century in America orthodontia emerged from the general field of mechanical dentistry as a recognized specialty. Its advent was heralded by the appearance of many 'systems of regulating.' These 'systems' were marketable combinations of mechanical appliances designed to effect various movements of the teeth, and were identified by the names of their inventors (Angle, Case, Jackson, et al.). While this period of the exploitation of apparatus undoubtedly was a great stimulus to the development of technic, the literature which it evoked took the form of personal opinion rather than the presentation of scientific evidence. Expert technicians soon demonstrated the limitations of the mechanical conception of the subject, whereupon interest centered in its biologic aspect. Since then the results of treatment have been more satisfactory. Great advances have been made in America where specialization is more common, while the conservative influence of the dental profession in Great Britain and European countries has acted as a stabilizing force in its growth. The condition of irregular and malposed teeth, i. e., malocclusion, may be caused by bad diet in both its chemical and physical aspects (Howe, McCollum, Mellanby).

"Habits of infancy and childhood, as thumb-sucking, tongue-biting and mouth-breathing, and mutilations from trauma and disease are also important causes. In fact any abnormal function in or about the mouth when persisted in may result in irregular and malposed teeth."

President Kelsey.—Thank you, Dr. Willett.

You have heard the report of the Nomenclature Committee.

Dr. O. W. White.—I move it be accepted.

Dr. E. Bach.—I second the motion.

[The motion was put to a vote and carried.]

President Kelsey.—We have next the Committee on Orthodontic Education. I believe Dr. Jones is going to make that report.

Dr. M. Dewey.—I have read this report. It is rather long. It is a good report, but Dr. Lischer has requested, I know, that the report be published in the Transactions of this Society. I think the purpose would be served as well that it be published in the Transactions. I so move.

President Kelsey.—You have heard Dr. Dewey's motion.

[The motion was regularly seconded, was put to a vote and carried.]

President Kelsey.—I hope you will convey to the members of your committee the regret the Society feels at not being able to have the report here. For committees in the future that expect to have a report of this length on an important matter of this kind, it would be well

to communicate with the Program Committee beforehand so that space can be left for it in planning the program of the meeting. It is almost impossible to do it otherwise.

Dr. E. G. Jones.—The committee feels that in order to give the subject the amount of prominence and publicity it should have, greater circulation should be given to it.

President Kelsey.—The Society feels exactly as you do, Dr. Jones.

[The report of the Committee on Orthodontic Education was published in the January, 1932, issue of this JOURNAL.]

President Kelsey.—The next committee report is that of the Legislative Committee.

Dr. Max E. Ernst.—In 1929 a law was enacted by the Legislature of the State of Arizona, which among other provisions recognized the practice of orthodontia as a profession separate and distinct from dentistry, prescribed the qualifications of orthodontists and provided for the examination and licensing of orthodontists. This law is now in force in that state. It includes provisions to which the members of this Society, members of the House of Delegates of the American Dental Association, and members of the dental profession in the State of Arizona raised serious objections. The passage of this act undoubtedly was the reason for the creation of the Committee on Legislation of this Society.

As a result of resolutions adopted by this and other organizations protesting this law, and quite largely as a result of conferences held at Nashville between members of this committee and the Chairman of the Legislative Committee of the Arizona State Dental Society, a bill to amend the present law was introduced at the 1931 session of the Arizona Legislature. This bill would remove some of the unfavorable provisions in the present law.

The proposed amendment stated that persons eligible to take an examination to practice orthodontia must present a diploma or furnish satisfactory proof of having graduated from a reputable dental school, maintaining a course in orthodontia approved by the Orthodontia Board of the State of Arizona. The bill then states what the minimum orthodontia requirements in such dental school must be. It also provides for examination of orthodontists who have been in exclusive practice in other states for at least five years, subject to certain provisions.

This proposed amendment to the present law was introduced in the Senate and passed that body without a dissenting vote. It was voted out for passage by the Public Health Committee of the House. This was but a short time before final adjournment, and, as is usually the case toward the end of legislative sessions, the appropriation bill and other bills, held to be of greater importance, were given preference and this bill did not come up for a vote in the House. We are informed, however, that there was little, if any objection to the passage of the bill. A bill similar to this one will again be introduced at the next session of the Legislature.

While this proposed amendment is not without its objectionable features, it is nevertheless a distinct improvement over the law which is now in force, and we hope that the bill to be introduced at the next session will be a still more desirable one.

It is the intention of the Committee on Legislation to study further the proposed amended act, to bring it to the attention of the Legislative Committee of the American Dental Association and to the legislative committees of the state or local dental organizations.

The members of the Legislative Committee of the Arizona State Dental Society desire the assistance of the Committee on Legislation of the American Society of Orthodontists in preparing this proposed legislation, to the end that they may obtain legislation that will meet the approval of this organization if that be possible. It is of course unnecessary to say that the members of the Committee on Legislation are vitally interested in any legislation of this kind and will be more than ready to render any assistance which will have a tendency to direct the legislation along proper lines.

No other legislation affecting the practice of orthodontia has come to the attention of this committee during the past year.

Respectfully submitted,

WILLIAM R. DINHAM, Chairman,
HENRY F. HOFFMAN,
FRANK M. CASTO,
CLINTON C. HOWARD,
MAX E. ERNST.

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Dr. Henry F. Hoffman.—I move the report be received.

[The motion was seconded, put to a vote and carried.]

President Kelsey.—The next is the Necrology Committee. Owing to the fact that the members of the Necrology Committee were not present, any one of them, I had appointed Dr. Eby Chairman of that committee which was previously appointed to prepare resolutions on the death of Dr. Hinman, as a committee to report on the other members of the Society who had died at this time.

Dr. Joseph D. Eby.—Our President handed me this file with the request that I take it over, today at noon. I have cheerfully done so. We have not had an opportunity to do anything. I see in the file there was reported during the past year the death of two of our members, Samuel P. Cameron of Philadelphia and J. B. Cohager of Duluth. Dr. Grieve sent down a resolution on the death of Dr. Angle and the death of Dr. William Revell of Ontario. That constitutes the report, and we beg more time to bring in a report at another meeting.

President Kelsey.—May I suggest that this committee kindly turn their data over to the Chairman of the Necrology Committee, Dr. Grieve. We shall merely refer this matter back to the Necrology Committee with instructions to prepare suitable resolutions and have them reported or printed in the Transactions as is the usual custom.

Dr. W. C. Fisher.—And a copy sent to the families. I make that motion.

Dr. F. M. Casto.—This discharges the temporary committee?

President Kelsey.—Except as to the resolution as regards Dr. Hinman.

[The motion was seconded and carried.]

President Kelsey.—The General Advisory Committee is the next one. Dr. Murlless is Chairman. Dr. McCoy and Dr. Brandhorst are present. Has that committee any report to make?

Dr. O. W. Brandhorst.—To my knowledge there was no meeting of the committee.

President Kelsey.—There was a committee on the revision of the Constitution and By-Laws, which I believe has already made its report. That completes reports of the regular standing committees.

The Chairman of the Board of Censors has a report to make.

Dr. P. G. Spencer.—The Board of Censors has two additional names to present for consideration for membership in the Society: E. W. Patton, Birmingham, Alabama; and B. E. Erickson, Chevy Chase, Maryland. I move the Secretary be instructed to cast the ballot, or suspend the ordinary regular rules of election and cast the ballot for these two men for membership in the Society.

[The motion was seconded, put to a vote and carried.]

Secretary Wood.—It gives me pleasure to cast the unanimous ballot of the Society for Dr. E. W. Patton and Dr. B. E. Erickson.

President Kelsey.—I declare them elected as members of the Society.

I shall ask the President-Elect to take the chair under the next order of business.

[President-Elect Baker took the chair.]

President-Elect Baker.—The next order of business is the report on the President's Address. I shall call on the Chairman of that committee, Dr. William E. Flesher.

Dr. W. E. Flesher.—The Committee on the President's Address met and gave consideration to the several topics discussed.

It desires to comment briefly on the following:

1. The supplying of adequate dental service.
2. The support of the Second International Orthodontic Congress.
3. The American Board of Orthodontia.

The supplying of adequate dental service to the public: The committee agrees with the President that the public is entitled to proper dental service and that for those who cannot afford the services of the private practitioner, a means should be made possible by which this can be obtained.

State and panel dentistry are being studied by various committees, and every member of this Society is urged to give careful thought to the problem of orthodontia in this connection.

It is felt that it would be most detrimental to the public welfare to have the administration of this service fall into the hands of laymen.

The Second International Orthodontic Congress: The hope of our President that all members join the Second International Orthodontic Congress and thereby receive the proceedings is hereby endorsed.

Personal attendance and contributions to the scientific program are strongly urged.

Our confreres across the sea will greatly appreciate a generous reciprocation of their support of the First International Orthodontic Congress.

The American Board of Orthodontia: The report of the interest shown by the large number of applications augurs well for the realization of the high purpose for which the Board was organized.

The committee shares the confidence of our President that when the objects of the Board to elevate the standards of orthodontic service become more fully understood by practitioners of orthodontia, there will be greatly accelerated effort to qualify for recognition by the Board.

The committee wishes to congratulate the Society on the excellent address of our President.

Respectfully submitted,

W. E. Flesher, Chairman,
R. W. Noland,
George R. Moore,
Henry F. Hoffman,
Leuman M. Waugh.

Dr. F. M. Casto.—I move the report be received.

[The motion was seconded, put to a vote and carried.]

[President Kelsey resumed the chair.]

President Kelsey.—The next order of business is nomination for officers for the Society for the ensuing year. The first office is that of President-Elect.

Dr. J. D. Eby.—Mr. President, I herewith nominate our regular member, Dr. Leuman M. Waugh, as a candidate for the office of President-Elect. I have only one object in so doing, and that is my belief that in it I am endeavoring to serve the best interests of this Society alone. Surely Dr. Waugh does not require any introduction or any more information in the minds of you men, but as the occasion follows I presume it would be wise for me to review a few points in his life and set forth some thoughts which are reasons why he should be elected President-Elect some day.

I should think it safe to say that Dr. Waugh has spent his entire career in the most faithful pursuit of the very highest ideals in his profession, or our profession, both of dentistry and of orthodontia. He has been tireless in maintaining and elevating the very highest possible standards in our profession in every way. As a teacher I do not know that he has been out of harness since he was graduated. He has perhaps as lasting and unbroken a teaching career as any member of our Society. Columbia University's Clinic is as nearly ideal as it can be made. His undergraduate teaching staff and plan are as nearly perfect as they can be made. He has a corps of associates around him who we New Yorkers not only believe but know belong to a nucleus who are going to carry the standards of orthodontia into the future in the next ten or twenty years, so much so that Dr. Waugh, recognized as a teacher, through his long experience, can be called a good educator. I know in the affairs agitated now in the subject of dental education, with his long groundwork, his association in the council halls where those matters are discussed, his opinion is held high in New York for his sound conservative reasoning basis. I believe Dr. Waugh is going to continue to exercise a very strong influence in the welfare of dental education during the next ten years. That makes him more than a teacher, as I say. It makes him a genuine educator. As a clinician we know he is serving the public as expertly and skillfully as any of us. He has a long honored record in general dentistry, recognized by the state and his community. I believe that his great experience as an organization man alone enables him to qualify for the administrative duties of this Society. Another thing, too, that I think he amply qualified himself for is that through his long career not only the manner in which he can manage that

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office but the manner in which he can dignify it has made him an inspiration to the younger men coming along. I think he will serve us with most efficiency and he is richly entitled to it. I do not believe there is a man in the organization to whom the name of Dr. Waugh is not familiar.

Dr. B. G. DeVries.—I should only like to add one thought, and that is to this office of President I think Dr. Waugh will bring a tact and experience and ability that will make him a very valued officer of this organization, and I take great pleasure in seconding the nomination.

Dr. W. H. Ellis.—I move the nominations be closed.

[The motion was seconded and carried.]

President Kelsey.—Nominations for Secretary-Treasurer of the Society are next in order.

Dr. W. C. Fisher.—I should like to place in nomination the present incumbent, the very delightful old gentleman, Claude Wood.

Dr. F. M. Casto.—Mr. President, without having any seeming desire to close the nominations, I will move, sir, that the nominations be closed.

Dr. W. C. Fisher.—I second the motion.

[The motion was put to a vote and carried.]

President Kelsey.—It is unanimous.

The next is for the office of Librarian. I am prepared to hear nominations for that office.

Dr. F. M. Casto.—Mr. President, I arise to nominate Dr. Abram Hoffman of Chicago for the office of Librarian of the American Society of Orthodontists. I think it is quite unnecessary to eulogize Dr. Hoffman.

Dr. H. L. Hosmer.—Dr. Hoffman asked me to second the motion.

Dr. H. G. Tanzey.—In view of the fact that there are likely to be a great many other nominations for this office that they would all like to have, I move that the nominations be closed.

[The motion was seconded, put to a vote and carried.]

President Kelsey.—There is one member on the Board of Censors to be elected. We will hear nominations.

Dr. O. W. White.—I should like to present the name of Harry Hosmer of Detroit in nomination for that office. Dr. Hosmer is a fellow townsman of mine, known to most all of you, young, vigorous, and it would be well for him and the Society working in Detroit, and I know he would be a valuable addition to this Society.

Dr. P. G. Spencer.—Dr. Hosmer has asked that I arise and make a motion that the nominations be closed.

Dr. F. M. Casto.—I wish to confess that Dr. Hosmer asked me to do the same thing.

President Kelsey.—It has been moved and seconded that the nominations for the position on the Board of Censors be closed.

[The motion was put to a vote and carried.]

President Kelsey.—I believe that completes the election of officers, and the selection of the next meeting place is the next meeting place is the next order of business.

[Secretary Wood read the list of cities which extended invitations for the meeting next year.]

Secretary Wood.—I have had quite a number of telegrams since the meeting started.

[Secretary Wood read the telegrams.]

Dr. G. V. Fisk.—In view of all these different places that are anxious to have the American Society of Orthodontists visit them I wish to extend a personal invitation on behalf of Toronto, Canada. As you know, the word "Toronto" is an Indian word meaning "meeting place." Long before this country was developed to its present position Toronto was a convention city. It still is, by the way. We have every facility there. If you will refer to the map in the middle of this folder, you will see the location. It is just across from Buffalo. It is an overnight ride. Just before I left for this convention the orthodontists of Toronto at a luncheon meeting were unanimous in extending this invitation, and are heartily behind it, and I am sure they will do all they can to make it a success.

Just in case you might be misled, as you are nearing Toronto you will see a sign—it is not a slogan, by the way, but an advertisement—reading, "Drink Canada Dry."

Dr. W. E. Lundy.—The American Dental Association is coming down to Memphis. Uncle Sam is right after us. He has exploded the bomb down there, but we have a few industries left.

Dr. A. C. Rohde.—On behalf of the orthodontists of Milwaukee and the Wisconsin State Dental Society and the Milwaukee Dental Society and on invitation from the mayor of our city and the Association of Commerce, I want to invite this Society to Milwaukee next year.

Dr. W. H. Ellis.—I move that Toronto be selected as the next meeting place for the American Society of Orthodontists. I know the men and the city and several other things about Toronto, and I think that they would make it a very nice place to go.

Dr. W. C. Fisher.—After the nominations are closed may I take a rising vote on each city having given us an invitation and not close out any one?

President Kelsey.—If there are no other invitations to be received from the floor I declare the nominations closed.

[A rising vote was taken on the cities of Toronto, Memphis and Milwaukee, and the city of Toronto was selected as the meeting place for 1932.]

President Kelsey.—Now it remains to consider the time. Is that always decided here or is it sometimes left to the Executive Board? I think we usually determine something about the time that would be the best to hold a meeting in a given section, and I would ask Dr. Fisk if he has any suggestion.

Dr. W. C. Fisher.—I have talked to Dr. Fisk, and to save him the embarrassment of getting up all the time and fighting for Toronto, I move that we go there on or about the third week in May. That will give the Executive Committee sufficient latitude to slide it forward or backward a week, definite dates to be decided by the Executive Committee.

[The motion was seconded, put to a vote and carried.]

[The meeting adjourned at five-ten o'clock.]

THURSDAY MORNING SESSION

(April 23, 1931)

The meeting was called to order by President Kelsey.

President Kelsey.—Dr. Wood has several things to be taken up at this time.

Owing to certain necessities in regard to the technic of completing the business of the Society it is necessary to ask for the election of members to the standing committees and also to the American Board of Orthodontia. It will occupy only a few moments. I shall ask Dr. Wood, the Secretary, to read the names.

Secretary Wood.—The nominations of the American Board of Orthodontia were read day before yesterday to be acted on yesterday, but we forgot it at that time. Dr. Ketcham was nominated by the Executive Board for a period of one year to fill the unexpired term of Dr. Lourie, and Dr. Casto was nominated for a period of seven years. It will be necessary that we have a motion that they be elected, and voted upon.

President Kelsey.—You have heard the nominations of the Executive Board for these positions on the Orthodontia Board. What will you do with them?

Dr. L. M. Waugh.—I so move, Mr. President.

Dr. J. A. Gorman.—I second the motion.

President Kelsey.—It is moved and seconded that the names proposed by the Executive Board be elected. Those in favor please say "aye"; opposed "no." It is so ordered.

Secretary Wood.—On the standing committees the Executive Board reported the nomination of Dr. Joseph D. Eby as member of the Inter-Relations Committee, Dr. Milo Hellman as member of the Research Committee, Dr. B. W. Weinberger as member of the Nomenclature Committee, Dr. F. T. Murlless on the Orthodontic Education Committee, and Allen E. Scott of San Francisco on the Legislative Committee.

President Kelsey.—Are there any other nominations? If there is no objection we shall vote on these names collectively. Those in favor of the names as read, on the various committees, will please say "aye"; opposed "no."

[The motion was carried.]

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President Kelsey.—We shall take a few moments for the reading of the minutes. This was delayed on account of the necessity for starting the other program.

[Secretary Wood read the minutes of the sessions of April 22, 1931.]

President Kelsey.—You have heard the reading of the minutes. Are there any corrections? If not, a motion for their adoption is in order.

Dr. B. G. DeVries.—I so move.

Dr. H. G. Tanzey.—I second the motion.

[The motion was put to a vote and carried.]

[Secretary Wood read list of names of those having made application for membership in the Society.]

[President-Elect Baker took the chair.]

President-Elect Baker.—We shall now hear from Dr. Spencer for the proposed budget.

Dr. P. G. Spencer.—

Essayists and clinicians	$1000.00	
Local arrangements	100.00	
Reporting	600.00	
Clinics	150.00	
Exhibits	200.00	
Printing—programs	700.00	
Incidentals	500.00	
Board of Censors	500.00	
Honorarium to Chairman of Board of Censors	100.00	
Honorarium to Secretary and Treasurer	500.00	
Contingent fund	500.00	
		$4850.00
Research fund		3000.00
		$7850.00

This is to be voted on tomorrow.

President-Elect Baker.—Dr. Dewey will now give the report of the American Board of Orthodontia.

Dr. Martin Dewey.—In the brief period that has elapsed since its foundation, the American Board of Orthodontia is glad to report a greater degree of progress than the most sanguine of its members anticipated.

The Board is particularly gratified because of the hearty encouragement and cooperation of so many of the members of the American Society of Orthodontists, including a great many practitioners who have for many years been prominently identified with the advancement of the science and art of orthodontia.

Of the seventy-seven orthodontists whose applications have been filed with the Secretary of the Board, twenty-eight have received certificates. The remaining applications are receiving the attention of the Board at this time.

The cooperation of all members of the American Society of Orthodontists is earnestly requested to the end that the American Board of Orthodontia may accomplish the purposes for which it was created in the fullest possible degree.

A booklet setting forth the purposes and objects of the Board may be obtained by addressing Dr. Oren A. Oliver, Secretary of the Board.

Submitted by the American Board of Orthodontia,

MARTIN DEWEY,

B. FRANK GRAY, Committee.

[A motion was made, seconded and carried to accept the report.]

[The business session adjourned.]

FRIDAY MORNING SESSION

(April 24, 1931)

The meeting was called to order by President Kelsey.

President Kelsey.—We shall have the reading of yesterday's minutes by the Secretary.

[Secretary Wood read the minutes of the meeting of April 23, 1931.]

President Kelsey.—You have heard the minutes. What will you do with them?

Dr. E. G. Jones.—I move they be accepted.

[The motion was seconded, put to a vote and carried.]

[President-Elect Baker took the chair.]

Dr. W. C. Fisher.—The custom of presenting the Past Presidents' key was neglected at the banquet, and fearing that our audience will begin to thin out during the day the Past Presidents have thought it best to present this token to our retiring President rather than wait until later in the day when probably there will not be a score present.

Will those Past Presidents who are in the room please arise and come forward? Dr. Casto, as one of the very young members, the youngest man in the Past Presidents' organization, absolutely the youngest and most obstreperous, I want to select you as the oldest and most dignified member of our Past Presidents' organization to confer this upon our retiring President.

Dr. F. M. Casto.—Thank you. The unexpected duty just assigned me by Dr. Fisher, while difficult, is a most pleasant one. Dr. Fisher stated that I had been selected because of my being the oldest and the youngest in the group. Since these points are diametrically opposite and can only be related by interpretation, I am not certain whether to accept the statement as a compliment or otherwise, since neither represents the case accurately. However, I am willing to meet Dr. Fisher on a common ground and divide such honors as may be intended.

The custom of presenting the retiring President with an emblem was inaugurated a few years ago at Chicago. The purpose of this was to give him something which would denote his devotion to the Society and would recognize in a material way the service which he had rendered. Twenty-seven men including our retiring President have been so honored.

In presenting this key to you, Dr. Harry E. Kelsey, I wish to express on behalf of the members and the Past Presidents our sincere appreciation and gratitude for the long and invaluable service that you have rendered. Your decisions have been judicial. In the conduct of the affairs of the Society you have been fair and just to all and have shown prejudice toward none. Your modesty, unostentatiousness and generosity have been refreshing, assuring and magnanimous, yet you have been possessed with the courage of your convictions and have stood for right and justice under all circumstances and conditions. Your administration has been harmonious and efficient, and the meeting over which you presided has been constructive and will mark an important milestone in the history of orthodontia.

The emblem is designed in the form of a key, which not only represents a badge of distinction and signifies knowledge and learning but will unlock the door to the innermost recesses of our hearts and minds and may be used for this purpose at any and all times.

Its presentation also carries a cordial invitation to join the dignified, though feeble organization of Past Presidents. In accepting this invitation, Harry Kelsey, it is not supposed nor expected that you will become so inactive and impotent in the activities of the Society as has been the case with so many Past Presidents, particularly those who are present upon this occasion and who have been most derelict in their duties.

It now does me honor to have the privilege of placing in your hand in due and regular form this emblem, a key, and with it convey to you the best wishes of every member of this Society. We trust that you will number it among your most priceless possessions. We have faith in your sincerity and are happy in the thought and belief that you will always wear it with satisfaction to yourself and with honor and dignity to the Society.

[The audience arose and applauded.]

President Kelsey.—I entirely endorse the statement of Dr. Casto that it is difficult on such short notice to prepare suitable remarks on such an occasion. If I knew it, I had completely forgotten that the retiring President was entitled to receive such an honor as this. But I assure the Past Presidents, and you, Dr. Casto, as spokesman for them, and the mem-

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bers of the American Society of Orthodontists, that I hope the receiving of this key, this token of membership in the fraternity of Past Presidents, will only be the beginning of my activities in the Society instead of the termination of them, and I assure you that I hope that from your own knowledge of the activities of other Past Presidents you will believe me when I say that I hope if I have offered any service to the Society in the past I may make it much better in the future.

[The session adjourned.]

FRIDAY AFTERNOON SESSION

(April 24, 1931)

The session was called to order by President Kelsey.

President Kelsey.—The scientific sessions of the meeting have been concluded, and we shall go into business session.

The secretary will read the minutes.

[Secretary Wood read the minutes of the Friday morning session.]

President Kelsey.—You have heard the reading of the minutes.

Dr. F. M. Casto.—I move they be approved as read.

Dr. L. M. Waugh.—I second the motion.

[The motion was put to a vote and carried.]

[Secretary Wood read additional names of applicants for membership.]

President Kelsey.—You have heard the reading of the names. They are not to be voted on at this meeting.

The thanks of the Society are extended to St. Louis, to the members in St. Louis who have done so much to make this meeting a success, and to the hotel which has offered us such splendid cooperation. If everybody has been as comfortable as I have been in the hotel, I am sure they will go away with very pleasant recollections of this meeting. I want to say that the Local Arrangements Committee has splendidly carried out its work and has adhered to all instructions of the Executive Committee in regard to the business and scientific meetings and also in regard to entertainment. The Local Arrangements Committee consulted the committee in all respects and has carried out in every detail instructions of the Executive Committee, and we wish to express our sincere thanks.

Dr. Martin Dewey.—Under the heading of new business, Dr. Ketcham and I should like to present the following resolutions:

WHEREAS, the University of California has gone to considerable expense to provide facilities whereby certain research work can be carried on for the benefit of the American Society of Orthodontists, and

WHEREAS, the University of California is allowing Dr. John Marshall to carry on this work without the American Society of Orthodontists contributing to the salary of Dr. John Marshall, and

WHEREAS, the University of California has virtually loaned Dr. Marshall to the American Society of Orthodontists to conduct this research work, be it therefore

Resolved, That the American Society of Orthodontists in regular session assembled wish to express their appreciation to the Board of Trustees and the President of the University of California for the cooperation accorded the American Society of Orthodontists in this research work.

I move the adoption of these resolutions.

Dr. A. H. Ketcham.—I second the motion.

[The motion was put to a vote and carried.]

President Kelsey.—I have been asked by the officers of the Orthodontic Section of the American Dental Associations to bring to your attention the work of that section and to bespeak for them your heartiest cooperation. I am sorry that they did not call my attention to this at a time when we had a full attendance, because I feel that it is the duty of this Society to support the Orthodontic Section of the American Dental Association, and I should call the attention of the members to the fact that at the Chicago midwinter clinic meetings, the Orthodontic Section is a very pretentious one, and it was said that the past meeting in January, the most recent meeting of the Chicago Society, the Orthodontic Section was equal,

if it did not overtop any of the others in point of attendance. I believe that it is our duty to support this section as strongly as we can.

We shall now have the reading of the budget of the Board of Censors for the following year.

Dr. P. G. Spencer.—The budget was presented yesterday for your consideration, and we are now presenting it for passage if you see fit to do so. I shall reread the items again so they will be recalled to you.

[Dr. Spencer reread the budget.]

President Kelsey.—You have heard the reading of the budget. What is your pleasure with regard to it?

Dr. Martin Dewey.—I move its adoption as read.

Dr. L. M. Waugh.—I second the motion.

[The motion was put to a vote and carried.)

President Kelsey.—Is there any other business which can properly come before this meeting? If not, we shall proceed with the installation of officers.

Looking over this meeting I see a great many who would be worthy to escort the President-Elect to the platform, but I think I shall designate Dr. Ketcham as apparently the senior member of the fraternity of ex-presidents, to that honor. Will you bring Dr. Baker to the platform?

Dr. A. H. Ketcham.—Mr. Ex-President and Fellow Members of the American Society of Orthodontists: Allow me to present your new President, Dr. Charles R. Baker, of Evanston, Ill. I am sure that Dr. Baker will shine in many ways in the capacity of President, and that he shall have a very successful meeting in 1932.

President Kelsey.—Dr. Baker, in resigning the gavel which we no longer have, it having been lost to another Society which met here, but at least in resigning to you the executive chair, I do so with a great deal of pleasure personally, due to the fact that I am relieved of heavy responsibilities, but also with the assurance that they will be taken up by you and carried on with more efficiency than I have been able to give.

I am sure that the Society is to be congratulated on having Dr. Baker assume the chair because there is no one in the Society who has had more experience with the conduct of its affairs than has Dr. Baker. As you are aware, he was Secretary-Treasurer for many years, and he has an absolute, intimate knowledge of the working details of the Society, besides which he has as good an acquaintance with the possible talent which may be secured for meetings as anyone else. He has a strong and efficient Board of Censors to work with, and I can assure you that the meeting which you will have in Toronto will not be surpassed by any that has gone before it.

In that connection I only wish to say that I hope and am sure you will receive the same cordial support I have received from all the officers, from all of the members, and from everyone who has been concerned in the conduct of the affairs of the Society for the past year. I cannot imagine a more pleasant thing than to be President of the American Society of Orthodontists, since I have had nothing but the friendliest cooperation from everybody.

If I had the gavel, I should hand it to you at this moment.

President-Elect Baker.—I thank you very much for the presentation without the gavel, and I assure you that I keenly appreciate the honor of being elected President of this Society. I haven't any speech to make, but I am going to try to have a meeting as nearly as good as Dr. Kelsey's as I can. I know the Board of Censors that we have and the other officers will cooperate in every way. I think that the location of the next meeting will be satisfactory to most of the members, and I hope we shall have a large attendance. I know the program is going to be good.

President Kelsey.—If I might, I shall designate Dr. Casto (now the former President-Elect is President, I presume it is his duty to do this, but I am going to hold the chair long enough for that) to escort the President-Elect up here.

[Dr. Casto escorted Dr. Flesher to the platform.]

Dr. Casto.—Mr. President, I have complied with your request, sir, by presenting the President-Elect of the American Society of Orthodontists to you, a man, a gentleman, a scholar and an orthodontist.

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President Kelsey.—If my authority extends so far, if I am not out of office, I wish to state that the Society is very happy to have had so fortunate a selection, Dr. Flesher, and the long speech which you will have prepared by the time you are installed as President will be prepared and Dr. Baker will have the opportunity, I hope, of handing you a gavel at some future time.

I am, myself, going to take the honor of presenting to you our Secretary-Treasurer. In so doing, I want to say that a year's experience with him in the arduous work of preparing for this meeting convinces me that you made a very wise choice in reelecting him. He has exceeded my highest expectations, and I assure you that there is no one who could have been selected of whom my expectations would have been as high as they are of Dr. Wood.

Will Dr. Wood say a few words?

Secretary Wood.—It has been a pleasure to serve you.

President Kelsey.—The member of the Board of Censors, Dr. Carlton B. Mott, is not here, but I can assure you that with my intimate association with Dr. Mott in the conduct of other societies I am perfectly safe in saying that he will conduct himself and serve the Society in the most efficient manner.

We also have the installation of the Librarian. I think this is the first time I remember of his being absent. Unfortunately Dr. Hoffman could not be here, but we again present him to you as your Librarian with the assurance that your selection has been most wise.

I believe there are no more officers to install, but the weak and inefficient manner in which I tried to thank all those connected with the Society for their cooperation I think should be supplemented by a resolution. I wish that somebody would put in the form of a resolution what I tried to say in thanks to their cooperation, so that it may appear upon our minutes.

I think I covered everybody concerned with the Society, if you are willing to have that put in the form of a resolution.

Dr. Casto.—I move that an acknowledgment to be made by the Secretary to all those who have contributed to the local arrangements of this meeting.

Dr. W. E. Flesher.—I second the motion.

[The motion was put to a vote and carried.]

[President Baker took the chair.]

President Baker.—We shall now entertain a motion to have the minutes of this last session approved without being read before the body. In that way the Secretary can finish up his minutes and enter them in the book. Otherwise they would have to wait until next year to be read and approved.

Dr. Casto.—Mr. President, each year just at this time at the close of the meeting Dr. Dewey and I vie with each other as to who is to make a stereotyped motion. Last year he made it, and this year he said I might have that privilege. So, Mr. President, I move that all of the official acts of the officers and committees of the year just now ending be approved, and, further, that the minutes of this meeting be approved without being read.

Dr. Dewey.—I second the motion.

President Baker.—You have all heard the motion, which is seconded.

[The motion was put to a vote and carried.]

Dr. Dewey.—I move the meeting be adjourned.

Dr. Spencer.—I second the motion.

[The motion was carried and the meeting adjourned at three forty-five o'clock.]

The following applications for membership in the Society were voted upon favorably:

Allen E. Bishop, Seattle, Wash.
Wm. J. H. Benson, Milwaukee, Wis.
Horace Colton Bliss, Toronto, Ontario.
George S. Calloway, New York, N. Y.
Herman W. Cook, Miami, Fla.
W. J. Fitzpatrick, Miami, Fla.
Wilson R. Flint, Pittsburgh, Pa.
Bruce D. Foster, Detroit, Mich.
Harry C. Morrow, Des Moines, Iowa.
William Mullin, Chicago, Ill.
Edward G. Murphy, New York, N. Y.
J. E. Richmond, Eugene, Ore.
Aubrey P. Sager, Philadelphia, Pa.
William J. Speers, Boston, Mass.
Richard H. Stucklen, Wilmington, Del.
Frank M. Taylor, Pomona, Calif.
Milton Scott Tucker, New York, N. Y.
Aldys Gray, Los Angeles, Calif.
L. M. Christie, Washington, D. C.
E. O. Kingsborough, Joplin, Mo.
Joseph L. Selden, Louisville, Ky.
R. B. Coomer, Louisville, Ky.

Wm. Broaddus Massey, Richmond, Va.
J. Elon Rose, Iowa City, Iowa.
John Davidson Newell, Wilmington, Del.
A. S. Bumgardner, Charlotte, N. C.
L. W. Gange, St. Paul, Minn.
Max R. Kadesky, Dubuque, Iowa.
George C. Timmis, Akron, Ohio.
Lester H. Tate, Canton, Ohio.
Frederick C. Allen, Boston, Mass.
James D. Glerum, Grand Rapids, Mich.
Richard A. Lowy, Newark, N. J.
Richard Summa, St. Louis, Mo.
G. Fred Hale, Raleigh, N. C.
Roy D. Mitchell, Atlanta, Ga.
Leland T. Daniel, Orlando, Fla.
William Paul Hoffman, Washington, D. C.
Stephen C. Hopkins, Washington, D. C.
E. W. Patton, Birmingham, Ala.
B. E. Erickson, Chevy Chase, Md.

The following applications for membership in the Society were submitted, to be acted upon at the 1932 convention:

Paul G. Ludwick
Will C. Welch
A. C. Broussard
E. F. Lussier
H. K. Cooper
Paul R. Nolting
Carl P. Cline
Harry V. Banks
George F. Bowden
Charles J. Vosmik
William P. Wood
J. Stier Cunningham
Eugene J. Kelly
Alfred R. Higson
Guy B. Fairchild
George H. Herbert
A. C. Mogler
Richard A. Smith
Brooks Juett
Morris L. Donigan

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DEPARTMENT OF
ORAL SURGERY, ORAL PATHOLOGY AND SURGICAL ORTHODONTIA

Under Editorial Supervision of

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A SURGICAL CORRECTION OF MARKED PROGNATHISM OF THE MANDIBLE

By Jacob Reiner, D.D.S., Brooklyn, N. Y.

Instructor in Oral Surgery, New York University

IN THE treatment of this case it was necessary to go beyond the usual corrective methods to that of surgical interference to restore the proper function, correct occlusion of the teeth, and improve the outward physical appearance of the patient (Fig. 1).

Fig. 1.—Views of facial outline. Full front and profile views before operation.

The case indicated surgical interference, but the aid and cooperation of the orthodontist were sought first for his diagnosis. His cooperation was necessary to select the precious metals that would not corrode and which would be of sufficient strength to stand the strain without giving or breaking at any time.

The patient presented himself for an examination at my office March 17, 1930, and expressed a desire to replace the missing teeth with the proper restoration.

Clinical examination disclosed that the second premolar and the first molar on the mandibular right side were missing, also the second premolar, the first and second molars on the mandibular left side were missing. All the maxillary teeth were in position except the right canine (Fig. 2). There was a collapse of the arch at that point. The x-ray pictures later disclosed an unerupted

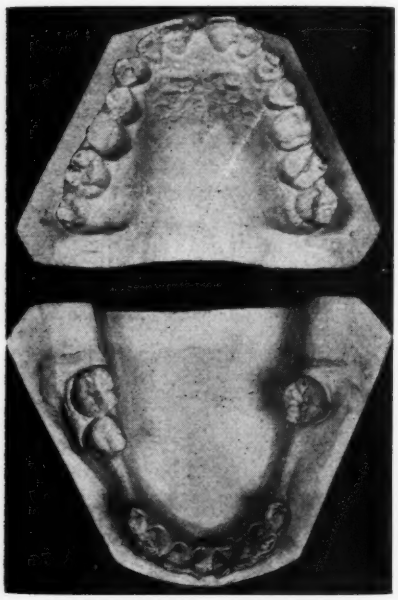

Fig. 2.—Occlusal views showing missing teeth.

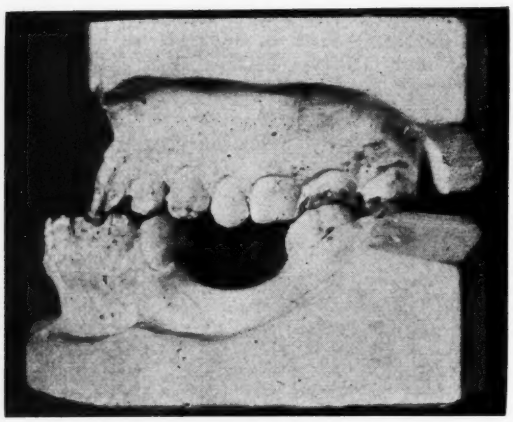

Fig. 3—Left side showing molars in occlusion.

Fig. 4.—Showing mandibular protrusion of 10 mm.

canine. The only teeth that occluded were the molars (Fig. 3). The mandibular anterior teeth protruded about 10 mm. (Fig. 4).

When my clinical examination was completed, I advised the patient that it would be impossible to make a serviceable restoration and establish occlusion with the conditions as they were. However, the mouth was radiographed (Fig. 5), and impressions were taken for study models.

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As previously determined, my study models (Fig. 6) disclosed molar occlusion and an overdevelopment of the mandible. The missing teeth helped to simplify a surgical correction if the patient was willing. I carefully unfolded my plan, noting the reaction of the patient but hinting at a possible corrective measure by an orthodontist, so the shock would not be too great.

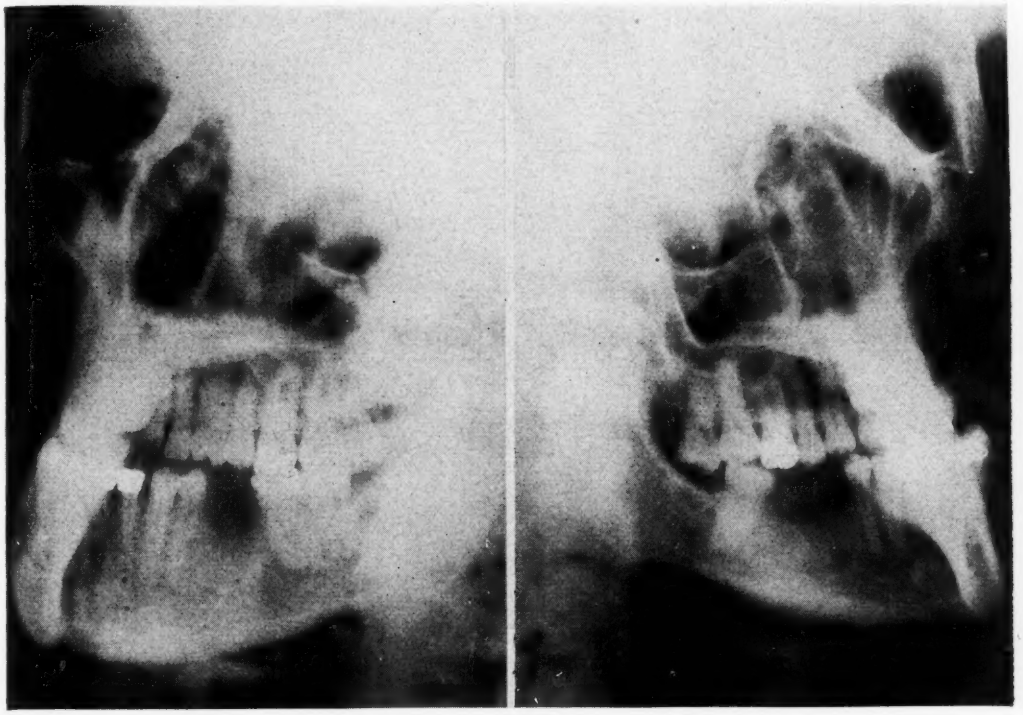


Fig. 5.—Right and left lateral x-ray pictures, before operation.

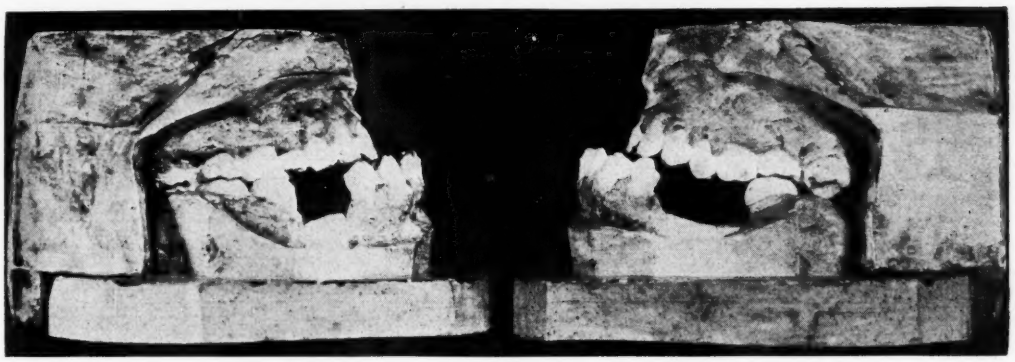


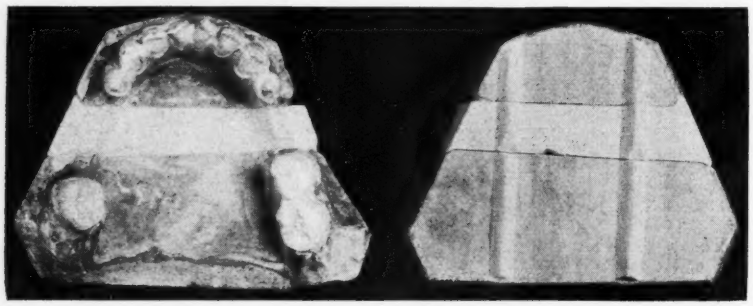
Fig. 6.—Right and left lateral views showing occlusion of molars and overdevelopment of the mandible and amount of resection.

My patient, an intelligent attorney, twenty-six years old, said no one had ever suggested such a course, but if in my opinion it was the best thing to do, he would abide by my decision.

He was then sent to Dr. Meyer Hoffman, orthodontist, for his opinion. He confirmed my earlier findings. No corrective regulation could be conducted with success unless the condyles were pushed out of their sockets, which, of

course, was impossible. He agreed that a resection of the mandible was the only thing.

A major operation of this nature was a serious matter and a great responsibility. I therefore consulted with Dr. Leo Winter, Professor of Oral Surgery at New York University, for his opinion. He also agreed that a resection was



A B

Fig. 7.—*A*, Occlusal view of mandibular model, showing amount of resection. *B*, showing track on under surface of model.

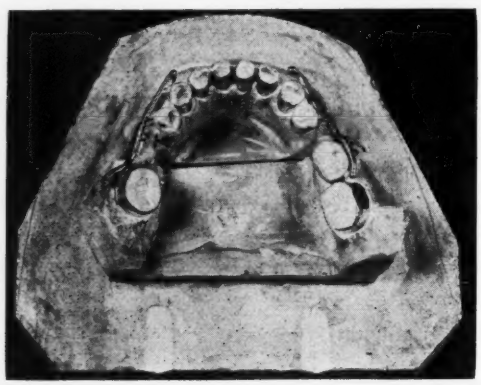


Fig. 8.—Occlusal view with section removed from model, and appliance in place.

Fig. 9.—Models on track, resected, and in occlusion.

the only method of permanent correction. The patient, knowing every care was being taken to make a correct diagnosis, and fully assured of its ultimate success, consented to have the operation performed.

The necessary arrangements were then made with Dr. Carl G. Burdick, Chief Surgeon at the Hospital for the Relief of Crippled and the Ruptured,

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New York City, for his service. The plan of procedure was outlined, models and appliances were made (Figs. 7, 8, and 9) and put in place prior to the surgical operation (Figs. 10, 11, and 12).

The patient entered the hospital June 20, 1930, and nine days later, June 29, was discharged. The operation was done under nitrous oxide, ethylene gas,

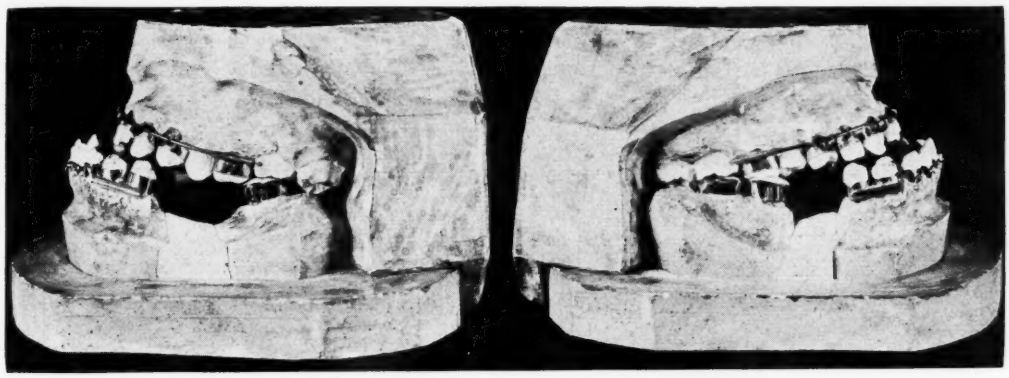

Fig. 10.—Models with anchor bands in place, before operation.

Fig. 11.—Both appliances in position, models on track, cut, resected 10 mm.

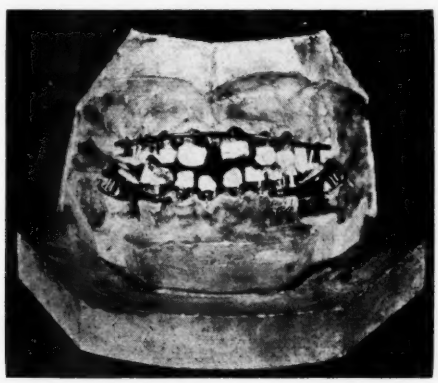

Fig. 12.—Front view with both appliances in place, models on track, resected 10 mm.

with Dr. Winter assisting Dr. Burdick. Dr. Hoffman and myself put the truss wires in position and wired the anterior segment (Fig. 13) to the posterior segment of the mandible after the operation was completed.

Intermaxillary wiring was not done until two days later because of fear of vomiting which would interfere with the comfort of the patient (Fig. 14).

The postoperative service was rendered in my office. The patient had no postoperative pain during the time he was in the hospital or afterward, and this may be accounted for by the fact that the mandibular dental nerve was resected with the osseous structure.

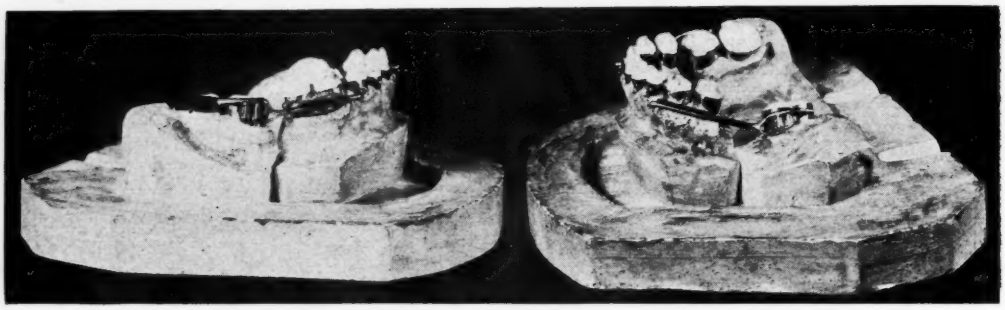

Fig. 13.—Showing truss, position in tube, and method of locking.

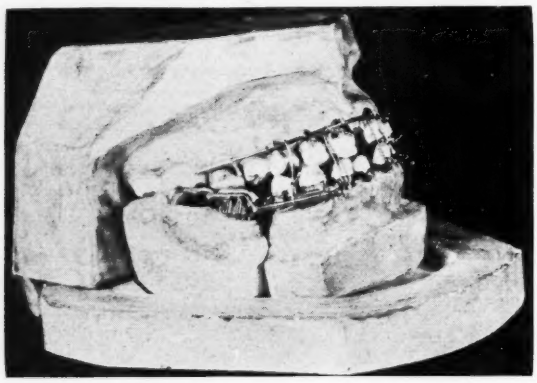

Fig. 14.—Maxillary and mandibular models showing ligation of jaws.

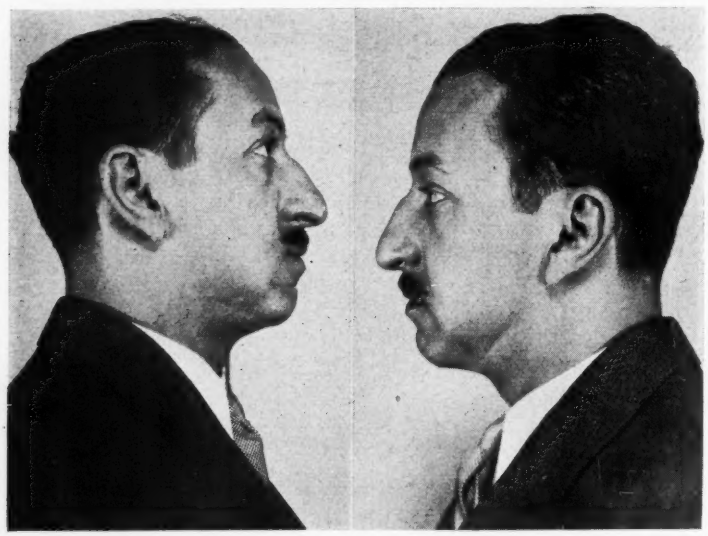

Fig. 15.—Right and left views of incision along the lower border of the mandible.

About one-half inch of bone was removed on the right side. On the left side three-quarters of an inch were removed. The incision was made along the lower border of the mandible on either side of the face (Fig. 15) about two

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inches in length, the facial artery was ligated, the muscles were separated and the periosteum was retracted from the mandible both buccal lingual on the ridge, and off the lower border in the natural spaces between the premolars and molars at the point where the resection was to be made. A surgical hand drill and chisels were used (Fig. 16). The complete operation of both sides took about one hour.

The intermaxilliary wires were left in position for a period of ten weeks, after which they were removed (Fig. 17). There were at that time a very good

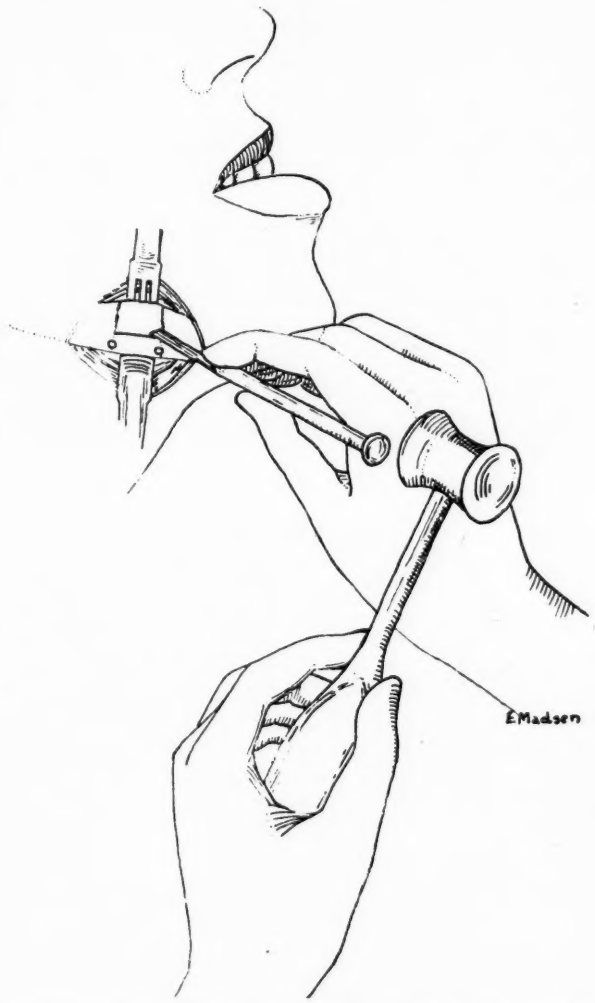

Fig. 16.—Showing retraction of soft tissue, exposing bone, and use of chisel and mallet.

fibrous union and a gradual deposition of calcium salts at the point of union. There is now perfect union with uniform cancellations of bone at the point of resection. The anterior segment at the lower border extended below that of the posterior border at the time of the resection. This has been absorbed and rounded off nicely (Fig. 18).

The left side suppurated a little. I found the truss wire impinging on the gums. After this was corrected and irrigated with zonite solution, it cleared up in less than a week.

At the point of incision on the right side of the face there was slight suppuration. This was opened by Dr. Burdick, after which it cleared up and healed completely.

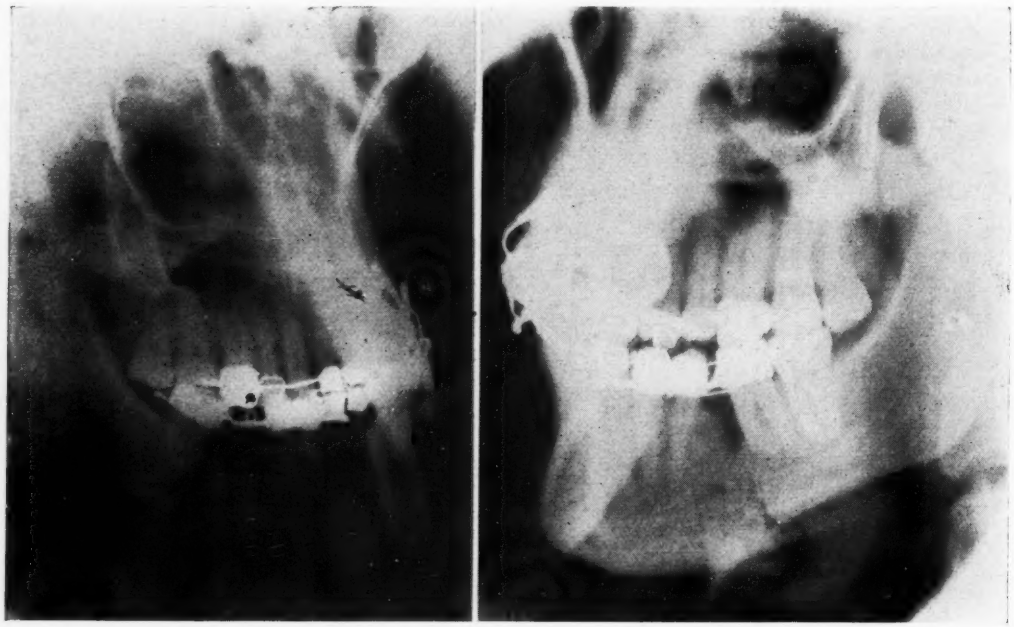

Fig. 17.—Intermaxillary wires in position.

Fig. 18.—Complete union of anterior posterior segments.

One of the remarkable things about the operation is the complete innervation of the anterior segment and the vitality of all the teeth except the two centrals which were devitalized. Authorities on the subject differ in explanation of this phenomena.

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The occlusion is that of a tip-to-tip bite (Fig. 19). All the teeth are in occlusion except the mandibular right premolar and canine. This is due to loss of the maxillary canine which is impacted and the rotation of the maxillary first premolar.

Before the operation could be performed there was considerable thought given to the preparation of the model which had to be cut, taking out the amount of the proposed resection. This model was put on a track to maintain its relative position after separation. Bands with tubing in place had to be made to fit each molar tooth, and the anterior teeth had to be banded and soldered together with small lugs to hold the arch wire, all made and cemented before the patient went to the hospital.

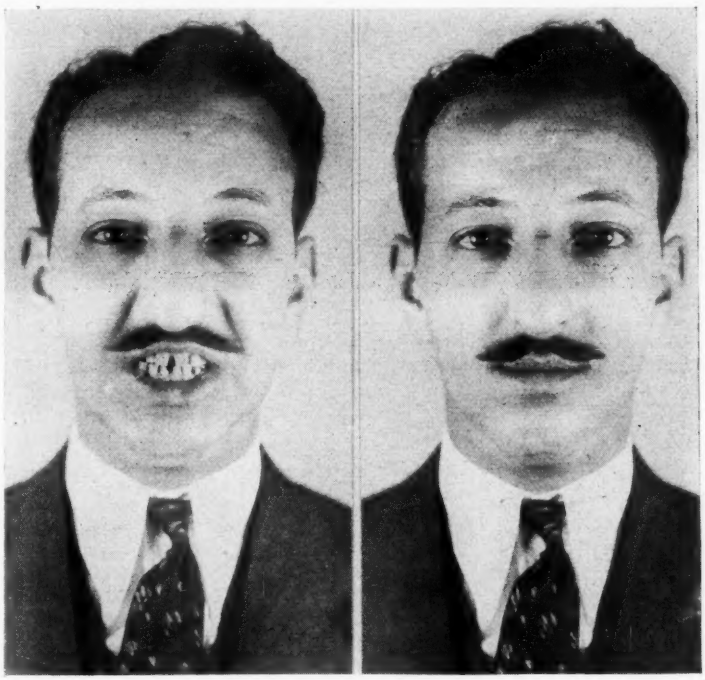


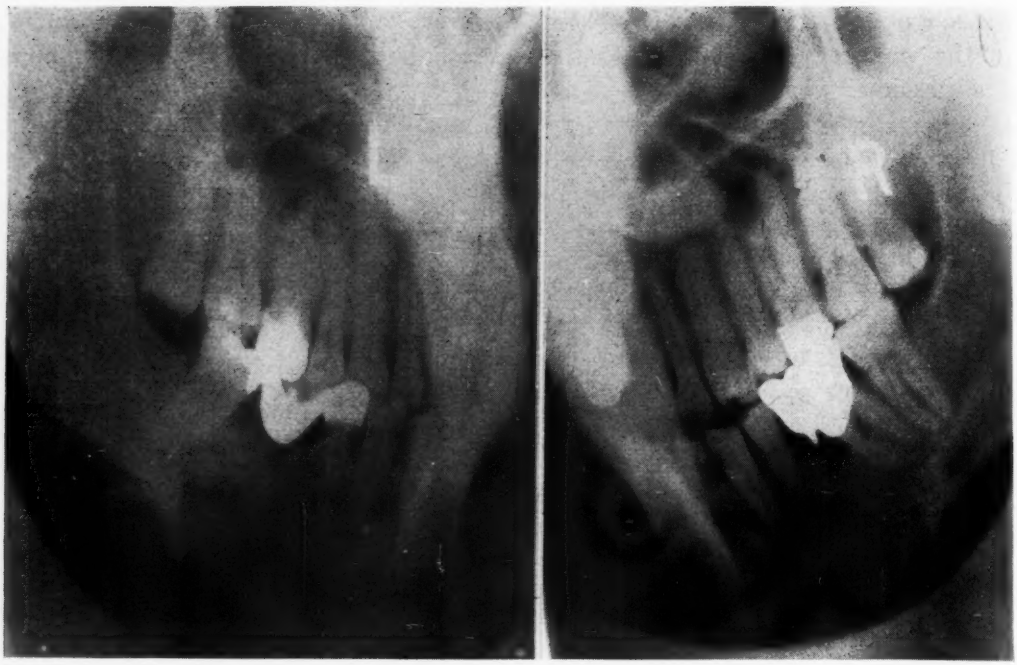
Fig. 19.—Showing tip-to-tip bite.

In addition to the arch wires a heavy truss wire was made to hold the centric occlusion directly after the operation and to maintain this position through the period of complete wiring.

The remaining spaces were restored in the following manner: On the right side a gold crown was used for the abutment and carried well down over the roots of the tooth from which there was considerable absorption of osseous structure and gum tissue, but which was firm enough to carry a small, one-tooth bridge for many years (Fig. 20 *B*).

On the left side a three-quarter crown was made for the premolar and a mesial occlusal gold inlay on the molar, and fixed with a pontic tooth (Fig. 20 *A*). A fixed bridge was used to act as an additional support for the anterior and posterior segments, this being the side from which the larger segment was removed.

X-ray pictures of the mandibular right central disclosed a granuloma. The root canal was filled and root area curetted. The left central pulp was devita-



A B

Fig. 20.—Right and left lateral views showing method of restoration.

A B

Fig. 21.—*A*, Completed case, full view, mouth closed. *B*, Completed case, showing porcelain jacket restorations.

lized and root canal therapy was completed, after which porcelain jackets were used to restore both teeth. The maxillary centrals were spaced and were of the Hutchinson's type. These were also restored with porcelain jackets (Fig. 21 *B*).

The resection and correction of the bite and restoration of occlusion with artificial appliances have given the patient a different outlook upon life. From a depressed, morose, unhappy individual with a strong inferiority complex, we have now a man whose outlook upon life and his profession is bright, happy and cheerful, and it has given him a determination to be successful. A mental cloud was lifted as a result of the correction of his physical facial defect to that of a normal individual (Fig. 21 *A*).

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CLEFT LIP AND PALATE—SURGICAL CORRECTION*†

By Albert D. Davis, M.D., San Francisco, Calif.

THE literature on cleft lip and palate dates back to the time of Aurelius Cornelius Celsus, a contemporary of Tiberius, who lived from 42 B. C. to 37 A. D. and who described an operation for cleft lip. Since that time more than two thousand books, articles, and treatises have been published relative to this branch of surgery. Recently a well-known editor of a medical journal stated that further articles for publication on these subjects were unacceptable. Yet statistics tell us that almost 80 per cent of all palatoplastic surgery results in failure in some form. If the same percentage of failures occurred in other branches of surgery, a general alarm would be broadcast.

Due to the fact that the deformity is so conspicuous and so distressing as to rob the individual of correct speech as well as to make him an object of commiseration or ridicule to others, is it not time that the profession takes a definite stand to lower the percentage of failures in this type of surgery? Unfortunately, surgeons especially trained in this work are few, and in view of the seriousness of the deformity these patients should be cared for by them. Yet clinical histories from a large number of both clinic and private patients show that dentists, osteopathic surgeons, general practitioners, and others have done cleft palate operations in an attempt at correction.

REASONS FOR FAILURES IN CLEFT PALATE OPERATIONS

There is no doubt of the frequency of failures, whether or not due to a lack of understanding or to the fact that any type of correction, good or bad, is better than the original deformity. Nevertheless the fact remains that a busy palatoplastic surgeon's practice is largely made up of patients for whom failures have occurred. In order properly to appreciate the reasons for so many failures one must consider that there are:

1. Sixteen types or forms which the cleft may assume.
2. Differences of opinion as to: (*a*) Time of operation. (*b*) Order of sequence of operation. (*c*) What constitutes a result. (*d*) Technic to be employed.
3. Individualistic tendencies among surgeons.
4. Insufficient funds available for the care of the patient.

Brophy classifies cleft palate into sixteen types, dependent upon the form and extent of the cleft. Nine of the sixteen require operations in early infancy to unite the separated bones, one type is inoperable, and there are twelve which require closure of the socalled soft palate, which really means all of the overlying soft tissues from the uvula forward.

When a patient is presented for possible operation, the surgeon must decide, primarily, the type of cleft; secondarily, the proper time at which to operate; and then, the order of sequence of the operations.

*From the division of plastic surgery, Stanford University School of Medicine.
†Read before the Surgery Section of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.
Reprinted from California and Western Medicine, 35:357, 1931.

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In clefts of the palate wherein there is lip involvement the usual tendency is to attempt correction of the cleft lip as early as possible. Many surgeons operate upon the lip as early as the first twenty-four hours of life, claiming that the child improves faster, that the shock is lessened, and that the feelings of both parents and friends are assuaged. Moreover, they claim that traction produced by the action of the united orbicularis oris will move the cleft bones together in such approximation that the bone operation either is unnecessary or is at least greatly facilitated.

While these claims are entirely within the realm of possibility and in certain respects quite commendable, yet due consideration must be given to the difficulties involved if the lip operation is done prior to obtaining a bony union. The bone cleft presents a problem not unlike an ununited fracture with the tissues overlying it spread open but healed. It is difficult to believe that the same surgeons who advocate closing the lip first would close separated but well-healed flaps over a fracture of the femur, and after union of the soft tissues had occurred proceed to set the fracture. It is contrary to surgical principles. Plastic surgery of the face teaches the importance of obtaining a proper bone foundation if the soft parts are to be normal. Therefore the entire groundwork for operations on the lip, nose, and soft tissues of the palate is dependent upon the formation of a united bony arch. Moreover the palatal plates are abnormally elevated during the formation of the cleft, and if the bones are simply approximated without being united the elevation remains the same. Then, too, there arises the problem of orthodontia after eruption of the teeth. While practically all cases of cleft palate involving the bones require orthodontia, whether operated upon or not, those which have been merely approximated without union present a serious problem for the orthodontist. If it becomes necessary to widen the arch in order to obtain normal occlusion and there is nonunion, the outward movement separates the approximated bones and widens the cleft. Orthodontists who recognize this condition oftentimes refuse to accept these patients until a surgeon has effected a bony union so that normal occlusion may be obtained without creating a greater deformity. In the majority of instances the nose is flattened and deformed and if the lip is closed prior to the bone operation, not only is there must less room in which to work on the palate afterward, but the undercutting and tissue trauma necessary to bring the nose over to the medium line are increased to the exact width of the bony cleft.

For these reasons Brophy early advocated the correction of the cleft in the bone before the lip operation was done. The time element is important, for the bone operation depends upon molding or bending the bones to their proper positions and retaining them until union occurs. The jaws of an infant at birth are only 50 per cent calcified, but after the sixth month calcification goes on quite rapidly; some of the teeth are erupting and the molding process is accomplished with great difficulty. The preferable time for the bone operation is between the sixth week and the third month, and if union is obtained the lip is closed six weeks later.

BROPHY OPERATION

The Brophy bone operation has many ardent followers as well as many critics. Chief among the criticisms offered are the following:

1. The time element. Many men criticize the procedure because it takes longer to insert the double wire sutures than it does to place a single wire suture through the anterior part of the cleft.
2. Displacement of tooth buds.
3. Dietary upsets and shock.
4. Sloughing of tissues under the lead plates.
5. Union of bones unnecessary.

While it is admitted that the time required for the complete Brophy bone operation is greater than that for the single wire suture operation, the results obtained warrant the procedure. In the first place, the Brophy bone operation, properly done, lays the foundation for the series of operations which follow on the lip, soft tissues of the palate and nose, and still later for the orthodontia which is necessary. Second, the posterior wires prevent spreading of the tuberosities with the sequelae which follow in the wake of such spreading. The displacement of tooth buds by wiring is usually found to be a technical fault. Now and then a tooth bud is lost because it lies in the cleft and interferes with union, but care in manipulation of the pilot suture needles, changing their course if a tooth is encountered, should prevent distortion or loss. Dietary upsets and shock are avoided if operations are done at the proper time and if the child is under the care of a pediatrician. Advocates of appliances for moving the bones slowly together instead of the Brophy bone operation claim these two points, but it would seem that more disturbance in diet would occur if a spring-regulated mechanical device, held in place by six or eight sharp-pointed prongs piercing the bone, were used. Moreover, there would be no lowering of the elevated palatal plates, so necessary for the normal development of the alveolar ridges. Sloughing of tissues under the lead plates in the Brophy bone operation is unknown. A few cases of slough have occurred in the soft tissue operation when improper use of the lead plates was made, but I have never seen sloughing occur following their proper use in the bone operation, even though left in place over two years, due to the patient's illness and inability to return. If union of the bones is considered unnecessary in order to obtain a result, it is an opinion not in accord with views held by some of the best specialists in this field.

END-RESULTS

The end-results of all palatoplastic surgery should be:

1. A firm bony union of the maxillae and premaxillae.
2. Soft tissues perfectly united throughout, long enough to close the postpharyngeal space, flexible enough to control the amount of air passing through the oronasal communication, and resilient enough to allow normal respiratory function.

These factors are within the reach of every surgeon who does this type of work. It must be remembered, however, that in a cleft of palate or lip there is enough tissue, but only enough to form a normal palate or lip. The tissues are merely ununited and malposed. In practically every case there is no deficiency. Therefore it is necessary to conserve all tissues at the time of operation. Nor is mere closure of the soft parts enough. A soft palate which is united at the expense of heavy scars or thickened short flaps, leaving the postpharyngeal space open so widely that normal speech cannot be attained, is a poor substitute

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Fig. 1.

Fig. 2.

Fig 1.—A cleft which was approximated by closing the lip first. An orthodontist would probably increase the cleft if expansion of the arch was attempted. Note the widespread tuberosities and the irregularity of the teeth in spite of the fact that no wires were used. Failure resulted because the bones were not united before other operations were attempted.

Fig. 2.—Casts of the same mouth. In *A* the condition prior to lengthening the palate is shown. By utilizing two-thirds of the palatopharyngeal muscle on each side, a long flexible palate was obtained, as shown in *B*.

Fig. 3.

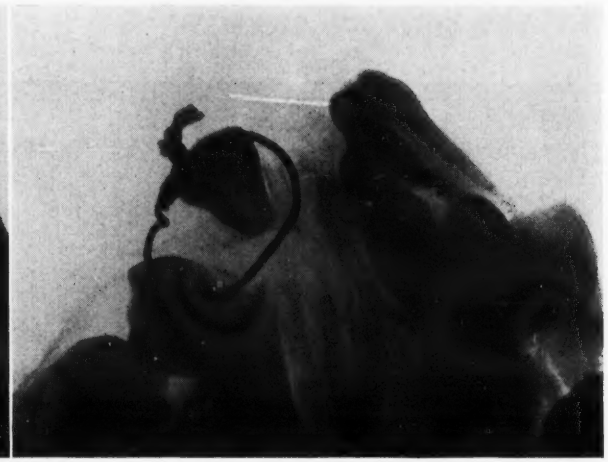

Fig. 4.

Fig. 3.—X-ray picture showing cleft still present in spite of approximation. Wires have not been used, yet note the irregularity of the teeth.

Fig. 4.—X-ray picture showing bony union following green-stick fracture operation. The silver wire is in place, the cleft is closed, and a firm bony arch is formed. With this foundation other operations to close the soft tissues will follow.

for what may be given a patient through better understanding and careful technic.

TECHNIC

Students of this subject find themselves all at sea in choosing a technic to be employed for a particular case. In conversation with the chief of the surgical staff of one of our large universities recently, relative to palatoplastic surgery, he stated that of the many cases operated upon, practically every type of technic advocated had been tried out in the hope of reducing the proportion of failures. With so many conflicting opinions and so many individualistic tendencies among operators, it is difficult to lay dow rules or fundamental laws which will work to the best advantage of the patient. However, if failures are to be avoided, certain standard principles must be adopted.

If it is agreed that a long, flexible palate, capable of perfect function and speech, is desired, there are reasons enough to warrant forming a foundation by uniting the bones first. These reasons may be summed up as follows:

1. Normal foundation for lip, nose, and soft tissue operations.
2. More nearly normal occlusion of the teeth.
3. Foundation for orthodontic treatment.
4. Prevention of oronasal sinuses.

Each case which presents for surgical correction, early or late, should be studied and an attempt made to obtain a bony union prior to other operations. Early cases may require only the typical Brophy bone operation. If the patient has never been operated and is over six months of age, it may be impossible to obtain complete closure of the bones at the first operation; but if the wires are tightened at different times, closure may be effected. Older patients require a green-stick fracture operation in order to get the separated bones into contact so that union may occur. This is done by chiseling through the outer alveolar plate in the region of the canine eminence, thence across under the floor of the nose and, leaving the lingual plate intact, a green-stick fracture is made, the bones are brought together and held in place with silver wires. While such an operation seems radical, the importance of bony union cannot be overestimated. When a united bony arch has been made, success in future operations may be expected, for the majority of failures in palatoplastic surgery are primarily those in which there has been failure in the bone operation.

Following the bone operation, closure of the lip is made. Surgery of the cleft lip involves surgery of the nose in many cases. It must be remembered that in all clefts where the bones are separated a floor must be constructed for the affected nostril or for both if necessary, otherwise a persistent oronasal sinus will result. Any operation which does not sacrifice lip tissue, which will bring the nose into normal position and give normal shape and contour to both nose and lip, should be the operation of choice. The surgeon must avoid: (1) sacrificing too much tissue; (2) making the lip too long; (3) lack of central fullness; (4) notches in the lip; (5) scar tissue; (6) tension; (7) infection.

Equalization in length of flaps, approximation of broad, flat surfaces, union of muscle elements, and care in uniting skin with skin, and mucosa with mucosa, are the fundamental principles of lip surgery. Closure may be made at any time if there is no cleft of the bones, but if the bone is involved, clefts of the lip are closed at the time the wires are removed from the cleft bones. This is

usually six weeks after the bone operation, and saves the patient a second anesthetic, which is important when a series of operations is necessary. Tension is best avoided by proper undercutting, careful approximation, and the use of the Logan traction bow. Scar tissue may be overcome in most cases by relieving tension, perfect adaptation, and early removal of sutures. Too many sutures must not be used. Infections of the lip should not occur. The use of the quartz light will oftentimes clear up mild infections, prevent seepage, and dry up a "wet" lip. Allowance is always made for some shrinkage in the midline.

Closure of the soft tissues of the palate is best done just prior to the time the child learns to speak. The advantages gained in waiting are that the flaps are better nourished, the elevated plates are more nearly normal, the arch is rounded out by the erupting teeth, resistance to infection is greater, and the feedings are farther apart. Flaps are raised with special periosteal elevators, well toward the linguogingival areas and posteriorly far back over the hamular process of the sphenoid. A definite right-angle excision of a tiny portion of the flaps in the midline from the tip of the uvula forward to the end of the cleft is better than any attempt at splitting the flaps. Broader surfaces are brought into contact for healing. Sutures must not be placed too closely together and tension must be avoided. Horsehair is the material of choice. Due to the independent movement of the muscles contained in each flap, the pressure of the tongue in swallowing, vocalization, etc., a splint of some kind must be used. In 1883 Brophy designed and used silver wires and lead plates to act as a splint to hold the lateral flaps in place during the healing process. By placing the posterior wire through the tensor palati muscle on each side, and the anterior wire slightly in advance, the splint causes the lateral flaps to move in unison without disturbance to the healing surfaces. Moreover the ends of the wires when bent down and twisted upon the lead plates cause discomfort to the patient when the tongue is raised in forceful swallowing, crying, sucking, etc., and render other appliances unnecessary. The splint must not be made tight enough to cut off circulation. It is not placed to pull the tissues forcibly together. All tension must be relieved by undercutting, and not by means of the silver wires and lead plates. The plates must be well away from the suture lines and must be contoured to the shape of the palate. Most important of all is the avoidance of tissue trauma in this operation. Small hooks, instead of forceps, are used to handle the tissues. Postoperatively the wound edges are kept clean by irrigations following each feeding and are painted with Berwick's dye.

It must be noted that lateral incisions are not used. Proper flap formation, avoiding the spreading of the tuberosities in the primary operation, and the use of the splint render their use unnecessary.

SECONDARY PALATE DEFECTS

Secondary palate defects are many and varied and oftentimes require all the ingenuity at the surgeon's command. The French gliding flap method is oftentimes efficient for small openings. Ollier-Thiersch, Wolfe, and the Gillies tubed pedicle grafts have all been used in some otherwise hopelessly inoperable cases.

Where a short, tense, scarred palate exists, even though closed, normal speech can never be attained until the palate has been lengthened. This is best

done by utilizing two-thirds of the palatopharyngeous muscle on each side, freshening the edges and adding on to the end of the palate.

Following this operation, speech training is advocated. In all cases, if speech has been learned prior to closure of the soft palate, even though a long, flexible palate is made, speech training is necessary. The surgeon can give the child the instrument of speech, but the child must be taught to correct the defects acquired in speaking abnormally. Some surgeons feel that cleft palate patients never attain perfect speech, but this is not true.

Proper attention to detail, time, and sequence of operations and a thorough understanding of technic are the factors needed to attain what should be the goal of every operator who attempts cleft palate surgery—perfect speech.

DISCUSSION

John Homer Woolsey, M.D., University of California Hospital.—Experience and duration of time to observe lead one to safer and more practical conclusions. Experience with methods outlined by the author as well as with other methods, the opportunity to observe patients operated in childhood and now attained to their majority and who are certainly "the proof of the pudding," have taught me certain procedures of value. As a result, I am convinced beyond a doubt of the fact that the use of wires and lead plates—acute forceful measures—as outlined by the author, do not give as good symmetry of the alveolar processes; they more often cause a tipping in of the entire alveolar border; injure the dental buds in many instances; give greater irregularity of alignment of the permanent teeth; and are a decidedly severe procedure leading at times to shock and even death, and the latter even in a master's hands. On the other hand, the nonemployment of the wires and lead plates, but the early closure of the lip (that is within the first six months surely, and even up to eighteen months) gives a symmetrical, normal arch to the anterior margin of the palate exactly comparable to the normal maxillary arch; aids closure of the palate by the gradual approximation due to the pull via the lip muscles, and results, in the majority of instances, in equally as good or better speech.

Fig. 1 in the author's article does not represent the true result of closing the lip first. It would appear that either the closure of the lip was effected only after bony formation had occurred or, unwisely, closure of the palate was first attempted.

The comparison of the closure of a cleft palate by closure of the lip first to the reduction of a fracture with intervening soft tissues is inappropriate, for there is firm bony formation above the cleft process; the closure of the periosteal flaps of the hard palate eventually gives a bony union, and later periosteal flaps can be brought into approximation from the alveolar edges, thereby giving exact bony union. Thus there never follows any such mobility or deformity as in an ununited fracture, as many readers of this article might interpret from the comparison made.

There are some patients who, unfortunately, have had all tissue available for closure entirely used up in plastic attempts. For these I would recommend the artificial palate which functions satisfactorily and can be constructed by any dentist at a minimum cost and without putting the patient through a wearisome, costly and, as a rule, unsuccessful Italian flap method, which occasionally is most unwisely attempted.

Speech is very good at times, but in every instance is the result of personal endeavor on the part of the patient. Fortunately speech training is now available to all who need it through the school system of our State of California.

Emile Holman, M.D., Stanford University Medical School, San Francisco.—In considering any subject containing within itself so many controversial elements as the proper procedure to follow in the operative correction of cleft palate, it is well to remember one of the aphorisms of Hippocrates: "Life is short, the art long, the occasion fleeting, experience fallacious, and deduction difficult." The occasional operator for cleft palate will undoubtedly be baffled by the intricate and sometimes difficult application of the Brophy procedures, and the results in his hands cannot be anything but discouraging. Logically, in planning any structural engineering it would appear preferable to build first the framework and then apply

the covering. The bony defect in a cleft palate requires correction as certainly as does the approximation of the soft parts, and if this can be accomplished without destruction of other important tissues, such as the unerrupted teeth, logically this should be done first. Brophy and his students assert that this can be done, and certainly the large experience of the former demonstrated not only that it is feasible, but also that it is desirable.

Of one point there can be no question—the desirability of providing a sufficiently long and flexible soft palate to permit a proper closure of the nasopharynx in the function of speech. Brophy's results in this respect were most gratifying and are undoubtedly the most important evidence favoring the application of his principles. The utilization of the palatopharyngeal muscles to lengthen the palate has also proved its worth when previous operations have resulted in a tense and shortened palate.

It is well in considering the subject of cleft palate to remember also that when the great artist, Nature, has failed, mere man is doomed to many disappointments in attempting to correct her mistakes. Limited experience may be fallacious, but a wide experience is instructive, and would seem to bear out the correctness of the logic of the Brophy procedures.

Emil F. Tholen, M.D., D.D.S., Los Angeles.—My experience with over two hundred of these cases leads me to endorse Doctor Woolsey's opinions and findings. Years ago I felt as Doctor Davis does about repair of the palate, but was forced to abandon the Brophy operation because of the results obtained not only in my own work, but in at least a dozen cases that came under my care that had been worked on by Doctor Brophy. I mention this so that it cannot be said I did not use his technic correctly. There is no question that the teeth buds are destroyed and misplaced by that operation, and the results expected in the way of bone union and normal replacement are not obtained any more often than with simple lip closure. We now use the Brophy operation only in older children with wide clefts and badly misplaced premaxilla. In some cases we find it necessary to place one wire after molding the bone in close approximation and then closing the lip over it. Doctor Moorehead demonstrated this method more than ten years ago. In single clefts we are using the Blair method of lip closure and are obtaining better results than ever before.

I have the highest regard for Dr. Davis' work and his keen interest in plastic and oral surgery, but in this field, I regret to say, our ideas differ widely.

Doctor Davis (Closing).—During Doctor Brophy's lifetime, devoted almost exclusively for forty-five years to cleft lip and palate surgery, approximately sixty-five hundred cases were operated upon by him. In 1923 he published a book in which he reported more than five thousand cases. If experience and duration of time led him to safer and more practical conclusions, surely he would have been won over to the "procedures of value."

The antagonism to the Brophy operation is usually traceable to the few cases seen by other surgeons wherein failure had occurred. Any surgeon who does a large number of cleft palate operations will have a certain proportion of failures. I make no claim to offering the Brophy technic as a panacea for failures. No doubt, in the hands of men untrained in this technic "tipping of the entire alveolar border, injury to tooth buds, irregularity of teeth, etc.," *does* occur. But when these things do happen, and the cause is ferreted out, a lack of understanding of the proper technic is responsible. Shock and even death are two things which every surgeon must face. In the city of Chicago in 1921 the death rate from all causes in all infants born was 12.99 per cent. Brophy's series of over five thousand cleft palate cases prior to 1915 show a mortality of 5.2 per cent, and after 1915 1.80 per cent, even including those who died while under observation two to three months after operation.

I am sorry to find such a variance of opinion as to what constitutes a symmetrical, normal dental arch. The whole object of this paper has been to show why a symmetrical, normal, united bony arch, with normal tuberosities cannot occur where it is dependent upon the traction of the lip muscles. Approximation, yes, but firm bony union never. How simplified cleft palate surgery would be were it possible to treat it, not as an ununited fracture with intervening soft tissue, but as an operative procedure involving only the turning of flaps, never followed by any mobility or deformity.

Figure 1 was chosen at random from many similar casts—some showing more and some showing less approximation of the bones *as the result of closing the lip first.* Closure of the palate was *not* attempted first.

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DEPARTMENT OF
DENTAL AND ORAL RADIOGRAPHY

Edited By
Clarence O. Simpson, M.D., D.D.S., F.A.C.D.,
and Howard R. Raper, D.D.S., F.A.C.D.

A RÉSUMÉ OF RADIOGRAPHIC SERVICE IN ORTHODONTICS*

(Stenographic Notes From an Illustrated Lecture)

By Clarence O. Simpson, M.D., D.D.S., F.A.C.D., St. Louis

THE first point to consider is that the recommendations for radiodontic service have been presented as they have arisen for the last twenty years. Dr. Ketcham, one of the first orthodontists to adopt radiography seriously in connection with his practice, has presented many of these methods which should have been adopted long ago as routine practice. It is in their neglect of the routine application of radiography that orthodontists are open to the greatest criticism.

There is little difference of opinion in discussing the question with orthodontists that there should be a routine radiographic examination as a preliminary to diagnosis, but is usually followed by an admission that they do not get as many or as good radiographs of their patients as they would like to have. In the rush of practice and in the difficulty of handling young patients they accept a compromise in radiographic service. The worst compromise is the plan of taking two intraoral views and two extraoral views, which many orthodontists advocate. They use a large film, 1-A size, and place it between the teeth and take a view down through the nose, and place another for a view through the chin to determine the presence or absence of the anterior teeth, and then a right and left extraoral view to determine the presence or absence of the posterior teeth, and call that a radiographic examination.

It does usually establish the absence or presence of the normal quota of teeth, but there is more information needed for diagnosis and prognosis, and to observe the results of treatment. Undoubtedly, there is much knowledge which could be supplied by radiographic evidence. Orthodontists are dealing with many problems regarding the response of bone to treatment and the subsequent changes in the teeth that might be clarified by more exact and thorough routine in radiographic service.

So the plea is for routine examinations before treatment is instituted. Too often orthodontists make a "hunch" diagnosis and begin treatment.

*Presented at the Thirtieth Annual Meeting of the American Society of Orthodontists, St. Louis, Mo., April 21-24, 1931.

When complications arise, a radiographic examination of the patient reveals that there are factors which must be coped with by a change of procedure and a loss of time. Loss of time in treatment affects the orthodontist, but even more it affects the child and the parents of the child; so no possibility which will increase the efficiency of treatment should be neglected.

Children are difficult patients for x-ray examinations. They do not tolerate well the film packets in the mouth, and it is impossible for them to hold still for any length of time because of the lack of muscle coordination. Children who had have their adenoids and tonsils removed have become not only gun shy but white-coat shy, and do not like anything done which can be avoided. So the orthodontist is inclined to make a compromise and reduce the thoroughness of the x-ray examination.

The minimum requirements of the radiodontic examination for orthodontic diagnosis are twelve intraoral films, including three views of the maxillary incisor region, one of the mandibular incisor region. one of each cuspid region, and one of each molar region. The cuspid region includes the bicuspids, and so does the molar examination. In addition to this, we should have the four occlusal views, the one occlusal view of the entire maxillary arch, which is entirely feasible, and three views of the mandibular arch, one of the incisor and cuspid regions, and one of each molar region. An occlusal view cannot be secured of the entire mandibular arch because of the fact that the crowns of the teeth are lingually inclined and the rays are diverging buccally. In the maxillary arch the crowns of the teeth are buccally inclined, and the rays are diverging in a similar direction, so that a fairly good longitudinal view can be obtained of all the maxillary teeth.

The accessory service is extraoral views of the left and right side which will show the second and third molar region, and which cannot be obtained intraorally in patients of the usual orthodontic treatment age. In the interproximal examination a film is placed to include the crowns and part of the roots of both the maxillary and the mandibular teeth at one exposure. This examination has been recommended for the discovery of interproximal caries, and is useful for that, but one of the most valuable uses is to make the molar examinations on the bite-wing film packets in orthodontic cases. The angles which are necessary to secure images of the unerupted teeth, bicuspids particularly, are so high in the maxillary regions and so low in the mandibular regions that the relationship of the deciduous and permanent teeth is distorted. This presents a misleading view of the relation of the primary and secondary dentition, but when a bite-wing examination is made with the angle projection ten degrees above horizontal, the true relation of the erupting permanent tooth to the decalcifying deciduous tooth is revealed.

The limited diagnostic value of stereoscopic views contraindicates their use routinely. They are interesting to play with, and in some very unusual condition may make a desirable record, but any one who is familiar with radiodontic interpretation can get as much diagnostic value from a thorough examination which does not include stereoscopic views. The size is so relatively small and the relationship of the teeth is so intimate that the depth of a stereoscopic view

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is not sufficient to give much diagnostic information. It is true that one can observe whether an unerupted tooth lies labially or lingually, but it is impossible to determine with accuracy how far labially or lingually the tooth is located. There is always a difference of opinion about the relative position of teeth or objects in stereoscopic views by different observers.

It seems that our stereoscopic vision is not uniform, and there is quite a factor of error in it. However, any one who has found assistance in stereoscopic examinations should use them. Anything that will give information is valuable, but stereoscopic intraoral examinations are rather exacting, particularly of children. It is difficult enough to make an ordinary intraoral examination without trying to get an accurate stereoscopic view.

The profile view might be suggested as an accessory service, but the importance of it is problematical. I presented it to this Society about eight years ago, and many thought that it was a useful thing, but it has not been generally used. The object of the profile view is to have a radiographic record of the relation of the soft and hard structures. By making a modified exposure the bones of the face and the teeth can be seen in the same view with the soft tissues overlying. The relationship is often surprising, but whether or not it is of any practical value has not been proved. Profile views should be made at as long a target film distance as the equipment will permit. When a small dental unit with a 10 milliampere tube and about a 45 kv. capacity is used, a target film distance of six feet is entirely feasible. With one screen and at a target film distance of six feet, the exposure will be approximately five seconds, which is not too long.

Cardboard film holders produce less contrast than intensifying screens, but the exposure is excessively long at a target film distance of five or six feet. It compels the use of a target film distance of three feet which injects quite a bit of distortion into the radiograph. The divergence of the rays is such that it produces a distorted view of the face and gives the head an apelike appearance. With the small dental unit a target film distance of six feet can be used with one screen back of the film. With equipment of greater capacity, I use a distance of fifteen feet because that happens to be the length of my office from the tube stand to the outside door. Two screens are used for speed, and at this fifteen-foot distance with 30 milliamperes, the exposure is only five or six seconds. The 30 milliamperes are necessary at a longer distance in order to minimize the exposure time.

An additional radiographic service is periodic examinations during and after treatment, which has been quite generally neglected by orthodontists. Many of the present problems might have been solved, or at least the solution of them aided, had there been more thorough radiographic records during and after treatment. When the question of root resorption arose, it seemed that Dr. Ketcham was the only man in the country who had sufficiently thorough records to present any evidence on it. If routine examinations are made at six-month periods or annual periods, even though no complications arise, they provide records which are essential for a study of many problems. You have found that records along other lines are valuable often beyond your first ideas. A record system that seems laborious and to offer no immediate assistance may be

found to have great value. It is evident that periodic radiographic records would be useful in orthodontic treatment to observe the changes which are occurring in the bone and in the teeth.

Orthodontists have suggested profile examinations made at short periods of three or four weeks during treatment to determine facial changes. It is unlikely that there would be any change visible in three or four weeks, and if they could demonstrate a change in the profile within six months, that would be all which could be expected. There is a sufficient factor of error in profile examinations that they may not be dependable even at six months or annual periods, but certainly not within weeks. The change in the profile is much slower than that in individual teeth or in arch form.

The technical standards of the radiodontic examinations for orthodontists should be considered because in many cases it has been too low. Orthodontists are primarily interested in the presence or absence of teeth, in the size, form, location and position of unerupted teeth, and in bone changes. They have few diagnostic problems in periapical conditions, such as there are in radiodontic service for the average adult patient. The sharp definition which is essential for general radiodontic service is desirable but perhaps is unnecessary for orthodontists. It is well that they do not require it because it is difficult to secure with children. It is desirable to have as good radiographs as it is possible to get with young patients; so every effort should be made to establish an efficient routine technic.

Should orthodontists make their radiographic examinations or have them made by a radiodontist? If an orthodontist is so situated that he cannot get satisfactory radiodontic service, he should and must make his radiographic examinations. If he can get adequate radiodontic service, it is foolish for him to attempt that part of the service because the man who is doing one thing all the time can do it better. He can do it quicker and with less discomfort to the patient, and he can do it at less expense providing the two operators' time is of equal value. He can do it at less expense because he is prepared for one service and because he can facilitate that service. Radiographic equipment for orthodontists in cities where there are radiodontists is an economic and professional mistake, because the orthodontist will probably not get as good results as the radiodontist, and he has enough upon which to concentrate his efforts without adding radiography.

The orthodontist who cannot obtain the service satisfactorily should have the equipment and should perfect himself to a degree that he can render the service. It is a mistake in orthodontia, just as it is in general dentistry, for the operator to have x-ray equipment merely for the conceit of saying that he renders all the service right in his own office and does not refer patients for anything, and then fail to render that service. It is not so much what he does as what he does not do that has the bad effect. He prevents the patient from getting the proper radiodontic service, and he does not render it himself, which is not a commendable attitude toward it.

The economics of radiodontic service in orthodontia resolves itself into whether the orthodontist can give the radiographic service without additional charge, or whether the patients can or will pay for the additional service. Those

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points have often been raised, as well as the question of what the value of the radiographic service is in orthodontic diagnosis and treatment. The extended period of treatment, the discomfort and inconvenience of the patient and the parents, and the cost of orthodontic treatment surely indicate that every effort should be made to expedite that treatment as much as possible. Every one agrees that radiographic examinations expedite orthodontic treatment; so the obvious answer is that it is an economic factor in orthodontia to have routine radiographic examinations. Whether or not the parents realize this and cooperate depends very largely upon the orthodontist just as it does upon the general dentist. If the service is suggested in an apologetic unconvincing manner, such as, "Well, we ought to have some x-ray pictures," the whole procedure is handicapped.

If he will say, "One of the first steps is to have an x-ray examination so that we can see what conditions are before we even start, and it is absolutely necessary," there will be no demurring about it.

It is necessary for us to believe a thing before we can convincingly state it to our patients, and we must realize that radiographic examinations are necessary. Then it is easy to state and demonstrate to the parents that one of the first steps is a general radiodontic examination to determine the presence or absence of and the condition of the unerupted teeth.

(Slide) This is offered as the minimum intraoral examination with the three views of the maxillary incisor region. In a median view of the maxillary incisor region, the curve of the arch and the superimposed structures limit the information obtainable regarding the teeth. The diagonal views materially add to the information of a median view, and it can be proved to any one's satisfaction that these are essential. There is one view for the mandibular incisor region, one for each of the cuspid regions, and one view for bicuspid and molar region.

(Slide) A part of the essential service is the maxillary occlusal view. This maxillary occlusal view shows the labiolingual and buccolingual relation of the primary and secondary dentition. In this one view there are the twenty-four teeth, all of the permanent teeth and all of the deciduous teeth excepting the central incisors. If all of the teeth are in approximately correct relation, this view will not supply much information, but remember that an x-ray examination is valuable in exclusion when not in discovery.

(Slide) This is an attempt at an occlusal view of the entire mandibular arch. It is only a foreshortened view because the diverging rays do not parallel the longitudinal axes of the teeth. It supplies some evidence but is deceptive for localization.

(Slide) There are the three occlusal views required for the mandibular arch, one of the incisor and cuspid region, and one of the molar region on the left, and one on the right. These are necessary because the angles of projection vary about thirty or forty degrees for the different views, and it is impossible to secure them all in one view.

(Slide) An accessory service is the extraoral views. Extraoral views show the relationship of the occluding teeth, not only the occlusal relationship which can be secured with casts, but the root relationship which may often be decep-

tive. It also shows the second and third molar region which cannot be secured intraorally.

The entire side of the mandible cannot be secured in the extraoral view. For a true perspective of a jaw, the examination must be limited to a section of the mandible. That makes a choice of having either the second molars and not the cuspids, or the cuspids and not the third molars.

(Slide) A profile examination to show the relationship of the soft and hard tissues. Evidently the value of this method has not been determined.

(Slide) Sometimes in the localization of teeth it is necessary to have all of the views. For example, the lingual view shows apparently an anomaly and a migratory tooth, the location of which cannot be fixed.

The occlusal view shows that the tooth is erupting at the external surface of the mandible, which is rather surprising. The suprainferior location of the tooth is not yet established because it is necessary to foreshorten the teeth in order to get an undistorted image of the tooth at so low a position. In the extraoral view the cuspid tooth is seen at the lower border, which would not have been surmised from the other views. Amusingly, a retaining appliance is attached to the erupted teeth. This space has been retained for more than a year and a half, waiting for the eruption of the cuspid before the radiographic examination was made, and that is not so very unusual.

(Slide) Another use of the occlusal view is to give a record of orthodontic appliances in position. It is the easiest way to record appliance and arch form when treatment is begun. If a cast record is used, a duplicate appliance must be made, but the occlusal view gives a radiographic record showing exactly what the appliances were, and the relationship of the appliance to the teeth as treatment progresses.

(Slide) This is an occlusal view before treatment was instituted. Here it is just six months later with the appliance in position, showing improvement in the position of the teeth. These examinations may be made periodically during the course of treatment, and they are a valuable additional record.

(Slide) Just a few anomalies here to remind you that nature does not run true to form by any means, and that the incidence of congenital absence of supernumerary teeth is frequent enough that it must be considered. In this patient there were only six or eight permanent teeth present. Only the second molars are present in the mandible. In the maxilla there are permanent central incisors, the deciduous laterals, cuspids, first molars, and the permanent second molars erupting. The occlusal view shows that there are no other teeth present in the maxilla.

(Slide) This is the mandible of the same patient. Here are the permanent second molars erupting, and those two are the only permanent teeth present. The deciduous teeth are in place and must be retained as long as possible because the permanent teeth are congenitally absent.

(Slide) This is an illustration of a common result following the operations to close a cleft palate. Disturbances of dentition occur following cleft palate operations. Nearly always there is failure in closing the bony structure. That is of importance to the orthodontist because if he is radical in the treatment of the arch, he will open the bony cleft still more.

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(Slide) It is interesting to observe the result of supernumerary teeth, particularly in the incisor region, and it is necessary to know that when a supernumerary tooth is present and you find that it is present, it should be removed as soon as possible. There is no need to wait for conditions to improve.

It only requires a small supernumerary to lock that whole group of teeth. It is surprising the resistance that a small supernumerary tooth will create to the eruption of two or three teeth, and lamentable experiences indicate the early removal of supernumerary formations regardless of local conditions.

Here is an inverted supernumerary which is probably of no clinical importance. It is an undesirable factor, but the removal of it is unnecessary.

(Slide) This supernumerary, which is blocking the progress of the other teeth, should be removed. The occlusal view shows the position of it. The occlusal view often shows these labiolingual positions so far different from what we imagine them in the lingual view that the occlusal view is always necessary. Do not wait for the supernumeraries to come down and be easily removed. Go after them.

(Slide) Here is a case in which the right central incisor has erupted. The left central incisor, lateral incisors and cuspid are being held by the supernumerary crown. It is surprising that that supernumerary would prevent the eruption of the entire group, but it is a serious loss of time to wait for conditions to improve.

(Slide) This is a multiple type, two or three little rudimentary formations, and the cuspid retained. The occlusal view shows the relationship of them.

(Slide) This is an illustration of what may be done by orthodontic treatment in drawing these unerupted malposed teeth into position. Frequently the cuspids are so far removed from their normal location that in young patients it is desirable to open into them and attach appliances to bring them into place.

This shows the result of six months' treatment on this cuspid which was forming at the lower border of the mandible and was brought almost into the line of occlusion within six months. It is interesting the way the blood and nerve supply is maintained during the tooth's progress. This is an interesting record of what can be accomplished in six months.

(Slide) This is an odontoma which has blocked the eruption of a tooth. How much better it would be to discover these things early enough to prevent such complications. It will never be done until routine radiographic examinations are made in all branches of dentistry.

Postmortem service after there are septic teeth, after the patient is in the hospital, or there are complications of orthodontic treatment before we make the x-ray examination, is a wrong mode of practice. An x-ray examination is not an unusual thing to be used for an unusual condition. It is just extending the field of examination further than is possible with eyes, fingers and instruments. It is taking advantage of an available means for further examination, so it should be viewed in that light and made a routine practice. Inspection at

any time for any purpose should include the x-ray examination, and then it will show these conditions early enough to prevent difficult complications.

(Slide) This is an illustration of a secondary dentition and something not always observed; it is the radiographic appearance of septic deciduous teeth. It should be recognized because a septic deciduous tooth is an undesirable condition. Sometimes the radiolucent zone around an erupting tooth is misinterpreted. It is the space occupied by the tooth sac and will register as a radiolucent zone. This is not the normal radiolucence surrounding an erupting tooth. It is bone destruction from a deciduous tooth. On the other side of the mouth is the normal radiolucency with the permanent tooth in proximity to the deciduous molar.

Secondary dentition in the mandible can be studied by the periapical examination, but in the maxilla the bite-wing film will give a more accurate view of the relation of the permanent and the deciduous teeth.

(Slide) This is another deciduous tooth septically involved. See the large area of radiolucence around the tooth compared with the normal radiolucence.

This shows a cyst as the result of a septic deciduous tooth removed about a year previously. Perhaps it is not a serious matter and may not have interfered with the development of the permanent tooth. It indicates the removal of the cyst, which developed from an abscessed deciduous tooth.

(Slide) These radiopacities deep in the alveolar process may be identified as deciduous root fragments, but the explanation of their location was not obvious.

(Slide) This is a series by Dr. Ketcham which illustrates what may be learned by periodic radiographic examinations. Here are the deciduous roots being resorbed. They are detached and left there at the crest of the alveolar process. As teeth develop the occlusal plane raises and the alveolar process builds around the roots until they are covered. Here they are three or four years later within the alveolar process. They could have been easily removed, but now it is probably better not to disturb them.

(Slide) There is considerable discussion about the relation of third molars to orthodontic treatment and a recurrence of malocclusion. We should discover third molars early and not wait until there is a relapse of malocclusion. When a mandibular third molar is erupting at an angle of forty-five degrees or less to the longitudinal axis of the second molar, it may be reasonably expected to erupt and be functionally useful if there is room in the mouth for it. But when the third molar is erupting at an angle greater than forty-five degrees in relation to the longitudinal axis of the second molar, it cannot reasonably be expected to erupt and become useful, and therefore should be removed. The earlier it is removed the easier and the more satisfactory is the bone repaired around it, because the age of the patient is favorable for a successful bone regeneration.

(Slide) This is a horrible example of almost complete resorption of the permanent roots following orthodontic treatment. It may not have been caused by orthodontic treatment, but it followed orthodontic treatment. The proportion of these resorptions, which are coincidental with orthodontic treatment,

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apparently indicates that the treatment is a factor but not the sole factor. This patient was treated by a general practitioner who followed two or three courses of treatment, a sort of intermittent treatment. The appliances were on three times with about a year intervening between the treatments.

The interesting feature is the peculiarity of the bone. Most instances of root resorption are associated with this characteristic bone type. This has led some observers to think the bone was diseased from these teeth, but these teeth are apparently vital. They are still useful, and usually resorption stops at this point; so the teeth may be retained for a considerable period of service. At least there is no indication for radically removing them because they have reached this stage, but this result is surely to be avoided.

DISCUSSION

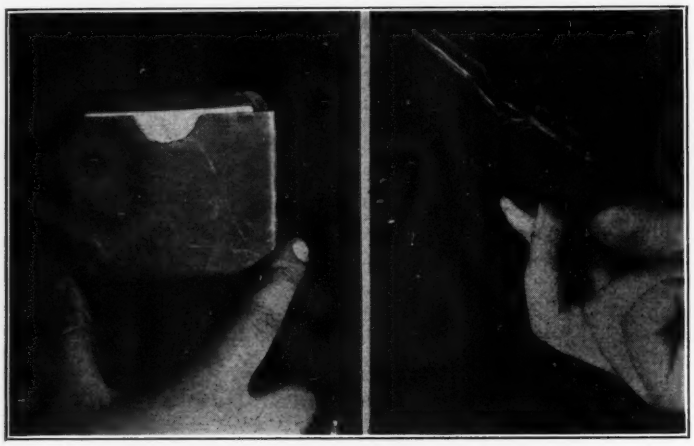
Dr. Sidney E. Riesner, New York City.—I am reluctant to show my temerity in coming before you to discuss this complete paper. It is only with the kind encouragement Dr. Simpson has given me in our correspondence that he believed I could "unquestionably supply additional information," that I present a few original offerings that I have found useful in my practice, more as an emphasis of Dr. Simpson's suggestions.

Fig. 1.

Regarding the accessory diagnostic radiographic service mentioned, I would urge you to consider the great importance of making an extraoral view of the head and face in the sagittal plane as an important diagnostic aid in bringing down unerupted and impacted teeth to their proper occlusion. This perspective view yields a fund of information concerning the surrounding tissues and structures that is frequently startling in this new orientation. (Fig. 1.) Incidently, since almost all these impacted teeth in the maxilla lie in the curved portion of the palate, the only true vertical delineation of their position without distortion is obtained by the exposure of the head in its sagittal plane.

STEREOROENTGENOGRAMS

It is possible to demonstrate by means of the stereoroentgenogram the normal physiologic change in the bone structure which is the result of pressure stimuli applied to the crowns of the teeth. Dr. Leland R. Johnson presented a crude but effective gross technic for duplicating the stereoroentgenogram at Chicago in January of last year. But in the actual exposure of the film he follows the technic of Dr. C. A. Le Master, which, while it is excellent in many respects, leaves something to be desired. It has frequently been a source of great annoyance to practitioners attempting to take occlusal stereoroentgenograms to replace the film packet in the mouth accurately and correctly for the second exposure. Dr. Joseph Eby last year presented before the New York Society of Orthodontists several commendatory technics to help overcome this vexation. I offer another simple and useful technic that we have found effective in our practice. Take a Victor Boland occlusal film, because of its uniform, even cover, and box it with pink wax on all but one marginal surface. Send it to a laboratory and have it vulcanized in one of the celluloid-base full denture materials, i.e., Hecolite. This will give you a permanent efficient tunnel to change your second film packet without having the patient unlock the bite he took with the original



A B

Fig. 2.

exposure (Fig. 2). It is easily sterilized in alcohol. This parallels the more elaborate automatic change tunnel employed in x-ray pictures taken by the roentgenologist of general anatomy.

PROFILE VIEWS

If you will forgive my perennial reference to x-ray profiles, I should like to offer an additional technic in developing them to produce perhaps a new result that will hold a special appeal to those who publish x-ray prints in reported publications of their papers in the various journals. The usual procedure is to have a print of the negative made, or through a laborious process make a print and then photograph the print to be able to reproduce the x-ray film in its familiar original contrasts. The technic recommended may be applied to smaller films also, and thus offers the contrasting study of a tooth from a print and a negative without making an actual print of it.

The technic for exposure is identical with the one recommended at our annual meeting in Buffalo in 1928, or the published correction suggested by Dr. Simpson in the International Journal of Orthodontia, Oral Surgery and Radiography in January, 1929.

After the correct exposure the film is taken out of the cassette in the dark room and mounted.

DEVELOPING

After mounting the film on the hanger, insert it into the developing solution, which should be 65° F., and move it up and down several times to free it from any air bubbles

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that may have pocketed and attached themselves to the film. Allow it to develop approximately one-half minute. The different densities and penetrations of different patients are what make this a variable factor. For some patients it may take about ten seconds longer than one-half minute, in others it may take correspondingly less. This will allow sufficient time to develop the soft tissues and profile of the picture. There remains an undeveloped latent picture of bone. This should be checked by visual inspection to insure yourself of the result. An interesting fact about visual inspection of films is that in the duplitized film, such as we employ in our technic, there is a double emulsion, laid on either side of the celluloid base. The proximal side of the film next to the intensifying screen during the exposure receives a little more concentration due to the effect of the actinic rays and therefore will develop a little faster in the dark room. With this in mind, it should be the side next to the intensifying screen that we use as our index in determining the proper amount of development. The distal side will remain more of a milky outline when the proximal side is arriving at the developing stage where bone is beginning to register.

If we allow the primary development to proceed too far, that is, long enough to allow the chemicals to reach the plane where the bone absorbed the x-rays and the latent

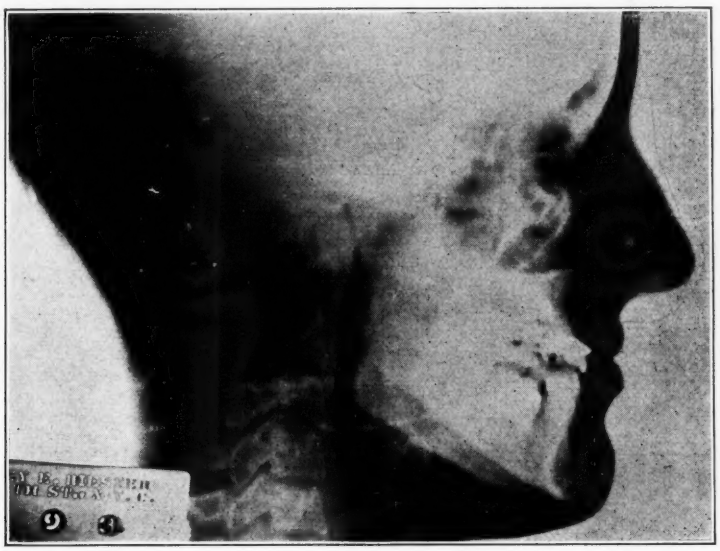

Fig. 3.

image of the brain case and maxillae appears strongly in outline, it will allow no further exposure of the silver salts. This locks the picture at this stage of development and any further actinic light ray exposure would only serve to fog the film.

After the primary development of approximately one-half minute, the film is removed from the developer and immersed in running water for about ten seconds to stop further development. It is then taken out of the water, held horizontally, parallel with the floor, at a distance of approximately four feet from a ceiling light that can be easily snapped on and off.

Expose the film to this ceiling light about one-twenty-fifth of a second. This last exposure of actinic rays of the electric light darkens the latent image of bone.

The film is then put back in the developer for about twenty to thirty seconds, to develop further this newly exposed portion of the picture.

Visual inspection is safer to determine the desired development. The whole plate appears dark. It has just passed that stage where the outlines of the picture are distinguishable.

The film is then quickly immersed in water to rinse off the chemicals of the developer and to terminate this chemical process, and then is placed in the fixer until it clears.

The film should be washed in running cold water for about twenty minutes and then hung in a place to dry where it will not be dirtied by flying particles of dust.

Unfortunately the dark room is not exposed to the view of patients; hence it does not receive the important consideration in its conception that such an important unit deserves.

I am glad that Dr. Simpson has mentioned periodic roentgenographic examinations during and after treatment. The restraint this information offers in cautioning us during active treatment should receive our full gratitude and appreciation. It is a much less harsh critic than if your patient reaches the hands of some of your confreres who do not understand the full circumstance of the case.

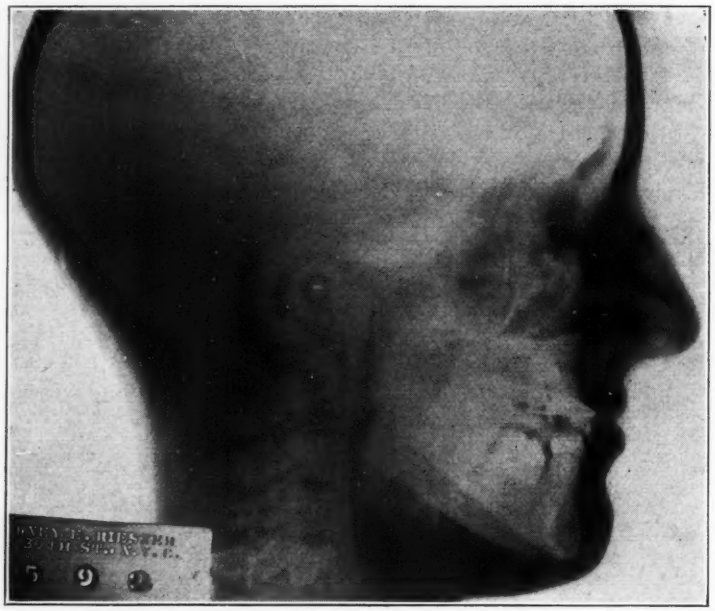

Fig. 4.

The discovery of the soundness of the teeth in regard to caries will help eliminate the unjust criticism that appliances on teeth are the fertile breeding grounds, by detecting any cavities before the teeth are hopelessly condemned through pulp destruction.

Your legal position is strengthened so much if, on dismissing the case as complete, you have a complete roentgenographic record of the teeth, augmented by an electric pulp test. You have then convincingly established the health of the patient's teeth when he has left your office.

Natural activities of the body engaged in defensive function are responsible for many variations which it pleases us to call "disease." If the study of the x-ray examinations shows us this, it will have done an inestimable service by curbing the evil effects of calling a structure pathologic merely because it is only unfamiliar.

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ABSTRACTS OF
CURRENT LITERATURE

NUTRITION AND PEDIATRICS

By Samuel Adams Cohen, M.D., New York City

It is the purpose of this Journal to review so far as possible the most important literature as it appears in English and foreign periodicals and to present it in abstract form. Authors are requested to send abstracts or reprints of their papers to the publishers.

Conditions Influencing the Disappearance of Living Bacteria From the Blood Stream. P. R. Cannon, F. L. Sullivan, and E. F. Neckermann. J. Exper. Med. **55**: 1, 1932.

Cannon, Sullivan and Neckermann report the results of their studies of the effects of specific active immunization on adult rabbits upon removal of bacteria from the circulating blood. One series of animals was immunized against *Staphylococcus albus* and another series against *Bacterium paratyphosum;* a third series was used as controls.

As a result of these experiments, these investigators concluded in part that (1) the simultaneous intravenous injection into normal and actively immunized rabbits of equal quantities of living staphylococci or paratyphoid bacilli is followed by a distinct accelerated rate of removal of the bacteria from the blood stream in the immunized animals; (2) the injected bacteria are quickly removed from circulating blood in immune animals, and what is more significant this phenomenon occurs less rapidly in normal animals. The injected bacteria are quickly sorted out and accumulate particularly in the spleen and liver where in enormous numbers these are phagocytosed by the macrophages and leucocytes in these organs.

These authors who report these investigations from the Department of Pathology and the Otho S. A. Sprague Memorial Institute, the University of Chicago, hold that the bacteria may be fixed in the tissues either (a) by actual adhesions to the surface of normal cells or tissues or (b) by an agglutinative or agglutinating action whereby their dispersion through the tissues may be impeded or minimized to the extent that their generalization or spread is limited, and therefore the dangers of disseminated infection are lessened.

The Influence of Diet and the Anterior Pituitary Growth Hormone on the Growth Rate of Adolescent Rats. A. Hughes Bryan and David W. Gaiser. Am. J. Physiol. **99**: 379, 1932.

Because Osborne and Mendel found that when fed on a proper ratio the rat is capable of a much improved rate of growth over that ordinarily obtained in the laboratory, the authors undertook an investigation to determine whether or not pituitary growth hormone could further accelerate the already rapid growth of young rats which were fed on Mendel's special diets.

Bryan and Gaiser observed that even in the presence of an excess growth stimulation, increase in body weight does not occur uniformly in all animals, although they all lived under the same constant environmental conditions. As a matter of fact these investigators who conducted their experiments at the Laboratory for Surgical Research of Harvard Medical School state that there are three more or less independent factors which seem to influence the growth rate of young rats. (1) The unknown factors which cause some rats, no matter how fed or treated (provided of course that their growth is not actually hindered) to outgrow their brothers. (2) The second factor to determine rate of growth is the quality of the diet; the experimental evidence of which has been so well illustrated by Mendel and his coworkers. (Animals fed on a better diet tend to both a more rapid and a more uniform growth rate.) (3) These animals when injected with anterior pituitary growth hormone have a still more rapid and uniform growth.

That there is much more complexity to the subject of growth even in the laboratory animal is emphasized by the investigators when they state that the "rapidity of the growth of animals subjected to an excess of hypophyseal growth hormone is, then, limited in a majority, if not all cases, by the diet fed these animals, and also, to a lesser degree, by the individual growth potential of the rat under discussion."

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EDITORIALS

Has It T. N. T. in It?

At Memphis last October the American Dental Association approved, with certain restrictions, the use of paid educational publicity by component dental societies. An Educational Committee on Publicity was appointed. This committee consisted of three members, two from New York and one from New Jersey, with the president of the American Dental Association ex-officio.

Quotations from correspondence directed to officers of the component societies reveal the following plan outlined by an advertising agency: "It stipulated that all articles published by local societies must be wholly educational, and all were to bear the stamp of approval of this committee to guard against the possibility of material being used which might in the slightest way reflect upon the dignity and ethics of the profession. Approval was given a comprehensive series of twenty-six articles written by the McNelis-Weir organization, and to a campaign which the dentists of Little Rock have advised was most successful there."

It has been pointed out that on January 18, 1932, the board of trustees of the A. D. A. met and approved of the work of the educational publicity committee and endorsed these educational campaigns. It is understood that formal notification of the trustees' action is soon to be sent to all officers of component societies over the signatures of the president and secretary of the A. D. A.

To quote further from the plan advocated by the advertising agency, "In cities where the local dental societies are sponsoring and publishing these articles, this has proved a workable method of procedure; the president or some senior officer presents the matter either to the board of directors or to the society itself in order that formal approval or disapproval may be registered."

"The society as a body assumes no responsibility. The text of the messages has been approved by the A. D. A. publicity committee. So what is required is simply that the society record its belief that this educational dental publicity is desired and needed and that it therefore sees fit to sponsor it if the individual members wish to underwrite it and prorate the cost of publication. (It usually is impracticable for a local society to assume this cost as a part of its regular operating expense.)"

Further quotations from the plan which may be of interest follow: "The publisher carries on from there, obtaining the dentists' subscriptions, etc. The twenty-six articles usually appear weekly for six months. The cost per dentist naturally depends upon the number subscribing, but customarily does not exceed two dollars a week and may well be less than that. (The charge for the use of these twenty-six approved articles is borne by the publisher.)"

"There has been growing in the profession a feeling that the ethical dentists were withholding from the public educational information of great interest and vital importance. Through the A. D. A. it has decided to take the lead in the field of dental education instead of leaving it to the dental trades and to the unethical practitioner. (A campaign of exactly the same educational nature in the field of medical health is now being carried on by the Los Angeles County Medical Association, a component of the A. M. A.)"

"Obviously such a series of articles appearing in a newspaper of wide acceptance has a powerful effect in molding public opinion as regards dentistry—in raising the popular appreciation of just what constitutes proper dental care. In every city in which the campaign has been published dentists have expressed their satisfaction at the tangible evidences they have had of the striking effectiveness of the various articles. Needless to say, that satisfaction is not shared by the unethical dentists."

It is said that there is something, for the sake of a better word perhaps it may be called a spirit, that is slowly passing away in the professions. It might be likened to the true artist's loyalty to his work and its traditions, to the pride of the actor in his art, to the spirit of the air mail pilot which drives him on to bring his plane through on time despite all hazards. It is the spirit of loyalty to an ideal, to a purpose.

Many traditions have been shattered in recent years, during the war and during this postwar period, and perhaps one should expect some changes to occur in the standards and ideals of the medical and dental professions along with the rest of the radical changes in the world's activities. It is not easy to reconcile

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ourselves to a lowering of the ideals so firmly implanted in the hearts of most of the members of the medical and dental professions. These professions during their long process of evolution, have enjoyed the loyalty, affection, dreams, broad visions, as well as the sacrifice and devotion of their tireless workers. There were pioneers in dentistry who regarded the profession as a thing to be cultivated and nurtured and to which they owed something to be paid day by day throughout their life time. Theirs was a philosophy that regarded money and its relation to professional practice, as something desired by the individual, but something that can be stolen, that can be destroyed, that can lose its value in a moment. They placed a higher value upon professional achievement. They knew that their contribution to the advancement of dentistry would live on forever and would continue to contribute to the happiness and well-being of future generations. This summarizes the best traditions of the old school, the ideals of which are still fortunately revered and cherished for the most part by the present generation of dentists.

Suddenly a great change has occurred, threatening these traditions. The dental press for instance reports that one state enjoys the distinction of having an advertising dentist appointed as a member of the state board of dental examiners. This interests the dentists not only in the state in which the appointment was made, but in all states and wherever dentistry is practiced. It means a big step in the opposite direction along the general path which has been trod for so many years by ethical dentists, by the type following the pioneer dentist just described. It indicates that whoever in authority may be responsible for this appointment, either directly or indirectly, are not concerned in any way about the traditional heritage of dentistry as a profession; neither are they interested as to whether dentistry is a profession or whether it is very definitely a business and has for its purpose only financial gain.

The question of advertising in dentistry always elicits a spark; the subject is virile, interesting, and delicate, we might say. When the house of delegates of the American Dental Association at the Memphis meeting approved newspaper advertising of dentistry to the laity, it opened an age-old controversy.

For a profession like dentistry to turn its back squarely upon its traditions, its code of ethics, and its teaching, is, to say the least, revolutionary. Of course, it is never too late to change from a course of error to one that is right, but who shall say that it is not right for dentists to look with disfavor upon advertising their wares through the public press; on the other hand, who is to say that advertising in newspapers is proper?

Men and women in the professions of medicine, dentistry, law, theology, and teaching of the arts and sciences look upon their calling as upon a higher plane than trade and commerce. Advertising in commerce is essential. The most unfit professional man or woman, however, may by advertising bring to his or her office a great number of persons needing his or her services; this is just what the unfit in the medical and dental professions have in the past sought to do. It is the short cut to financial success that many try to take who do not deserve success in any form because of their unfitness, their inefficiency, and many times their lack of education and training in their profession.

The practice of medicine, dentistry, or in fact, any of the allied and con-

tributing professions pertaining to the cure or treatment of human ills carries with it grave responsibility. The lure of wealth or the natural human appetite for money can never remove this responsibility. The services of a professional man, particularly in these two professions, who is not endowed naturally with a high degree of integrity and a wholesome conscience, are worth less than nothing to the community. It is true that under present economic conditions the income of many dentists has been reduced, but so has the income of every other professional man; and this is true not only in the professions, but in every walk of life. The physician is taking his income reduction gracefully and is reducing his expenditures to meet his income and is not expecting to resort to newspaper advertising campaigns to "step up" a declining practice.

Perhaps it is not well for either professions or individuals to be too closely bound by traditions or customs. Progress sometimes means cutting loose from the past and striking out into the future with courage, vision, and a vigorous search for truth. It is not well, however, for either professions or individuals to turn from that which is known to be good, even though it is old and smacks strongly of tradition, to the new unless the new is definitely known to be better than the old.

Truth is man's best anchorage; truthful living is the most sensible living, professionally or commercially. When a dentist or a physician lives by his reputation, he is living in the most truthful manner. When he lives by paid newspaper advertising, then he is living in an atmosphere in which his conscience naturally rebels. There are great temptations offered the professional man who is permitted to advertise his powers in the newspapers. The field is wide open. Most of us think that we are better professional men than we really are, and some of us feel that we are better orthodontists than our results prove us to be. Even if it is sound professional ethics for us to advertise in newspapers as a group our skill to those needing it, we are weak and human enough to advertise our successes and to hide our failures.

Physicians and dentists are the guardians of health. Unfortunately, however, there are men in medicine and dentistry who are not fitted for the work they have elected to do, and humanity is not protected when it falls into such hands. Men of this type, in a great many instances, build up and hold a practice by advertising through the newspapers and magazines when it would not be possible to build up and hold a practice through the power of their reputation gained as a result of services rendered. It is a duty that every physician and dentist owes to his profession, to society, and to himself to protect the public from the unfit in these professions. No weapon has been so powerful in the hands of ethical physicians and dentists to be used against the quack and the charlatan as his ability to point out to the public that the charlatan and the quack must rely upon advertising stimulation to secure business. Now if organized dentistry is to use newspaper advertising, even though it be done under the sponsorship of a local society, how can the members of such societies discriminate between themselves and the painless dental parlor operators? This is the reason for asking, Is there T. N. T. in this plan?

The plan outlined by the leaders of the American Dental Association is, to be sure, labeled educational advertising to the general public by the American

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Dental Association. Notwithstanding this, advertising when paid for is advertising, the world over, no matter what it may be called. The question arises, Is the good which might be secured entirely offset by the harm which may accrue? It is to be remembered that dentistry cannot be placed in the same classification with the service of the butcher, the carpenter, the bricklayer, or the merchant, who are dealing in commodities. Advertising is legitimate and essential for this group. The dentist must look above the dollar mark, which is the sign looked for by those who advertise their services through the public press.

Dentistry has become a profession through a long period of evolution. It was practiced by the ancient Inca civilization to some extent; they inlaid metal in the teeth, and they also extracted teeth, using chewed cocoa leaves as an anesthetic to deaden the pain. In that stage, dentistry might not have been exactly a profession, but it was a necessity, and obviously the medicine men of the tribe became somewhat adept in their art. Another stage in the process of dental evolution came many years later when lost teeth were restored by means of wooden blocks wedged in place in the mouth; dentistry was slowly becoming more and more artistic. Later came artificial dentures. Innumerable steps, one by one, followed. After a while, the first dental college was organized in Baltimore; dentistry became more highly specialized, rising slowly. It became more important and was segregated from the practice of medicine. This leads us to the modern practice of dentistry. During the last seventy-five years, dentistry has become increasingly and laudably ambitious to be a profession and to take its place beside the other professions. It has been said by some of the most eminent practitioners that the profession of dentistry has made more progress in the last ten years and has taken more important strides to entitle it to scientific recognition than in its entire career preceding this ten-year period. This progress then permits it to enjoy higher scientific classification now than ever before.

If organized dentistry goes in for this comprehensive revolutionary advertising scheme as outlined by the A. D. A., the question naturally will arise, Will dentistry not, by the very nature of this move, suddenly and tumultuously lose the scientific caste into which it has evolved during the last seventy-five years? Will 1932 mark the peak of dentistry as a scientific profession and see its decline into a business? And will dentistry finally be directed by boards of directors and stockholders? Why not? If newspaper advertising is right, why not dental corporations? Corporations are more efficient than private ownership.

The question after all is, Is this a move forward or a move backward? It will make more business, that is true. Advertising always does that, temporarily, at least; but how about the five-year span, the ten-year span? Will dentistry be as well regarded ten years from now as it is at this time if this wide advertising campaign officially sponsored by the American Dental Association moves forward as planned and outlined? In any event, the whole plan if executed at all must be very carefully worked out and in as dignified a way as possible, with no ballyhoo or beating of tom-toms, if it is to accomplish any part of the purpose intended, and avoid a crashing market for dentistry as a scientific, learned profession, at least.

THE INTERNATIONAL JOURNAL OF ORTHODONTIA, ORAL SURGERY AND RADIOGRAPHY believes that this move of the American Dental Association is fraught with

hazard and danger to the future of dentistry, and it believes that this is the most important single move to the ultimate destiny of dentistry which has ever been made in the entire history of the profession.

It has been said that the American Medical Association in its campaigns on public education does something of the same thing. It is to be remembered, however, that the efforts of the American Medical Association are not directed primarily to paid advertising campaigns but to educational articles inserted in the newspapers under the heading of public information. There can be no objections to this because information is one thing and affects the psychology of the public in one manner, while paid newspaper advertising is another thing and its real purpose cannot be obscured when it is actually and definitely paid for, at so much per copy. Its purpose is to stimulate business, and there is no use trying to fool ourselves or the public about this.

A paid advertising campaign in full swing at this time will no doubt sell more dentistry, but at the same time it in all probability will cause the public to sell dentistry short as a profession, and the short interest moves down hill fast nowadays, when once it is given a push in that general direction.

Has the plan T. N. T. in it? —*H. C. P.*

The Functions and Plans of the American Board of Orthodontia

THERE is obviously no small amount of misunderstanding in orthodontic circles regarding the aims, plans, and purposes of the American Board of Orthodontia, which was recommended and appointed at the Estes Park meeting of the American Society of Orthodontists during the administration of Dr. Albert H. Ketcham of Denver, as president. In checking over the history and record of the Board it is apparent that the American Board of Orthodontia was conceived, originated, and organized in order that there might be in existence some kind of measuring device, or yardstick, by which the ability of an orthodontist or of one practicing orthodontia, might be measured by his confreres. It was argued that there should be some means of filing or indexing ability and competency, judging aside and apart from any statutory labeling of talent by either the state, the federal government or licensing boards of the various state boards of dental examiners.

It is obvious that the American Society of Orthodontists, by their action in Estes Park and in the present state of evolution of the practice of orthodontia, are asking themselves the question, "When is an orthodontist an orthodontist?" and like several specialties of medicine are trying to create a standard for their own purpose to their own liking.

Several plans were discussed. The one developed to the fullest extent was that of conferring honorary degrees upon orthodontists; however, after careful study this plan was abandoned. Then in 1928 several members of the American Society of Orthodontists began to study the plan of operation of the American Board for Ophthalmic Examinations and of the American Board of Otolaryngology. Several editorials appeared in this Journal bearing upon the subject and advocating the formation of a board along the lines of the Board of Otolaryngology. Members of the latter board were interviewed, and from

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these members information and ideas of great assistance were secured, valuable in forming the American Board of Orthodontia.

In his address as presiding officer of the 1929 meeting of the American Society of Orthodontists, Dr. Ketcham outlined the advantages of such a board and suggested that a board be formed. The rest of the story has been published and is told in the bulletin of the Board which may be secured from the secretary.

The first meeting of the Board after its creation was held in Chicago, January, 1930. An attorney was called in consultation, and it was decided to apply for a charter under the laws of the State of Illinois. This charter was issued to the Board on the twenty-seventh day of January, 1930, and is similar to the charter granted the American College of Surgeons by the State of Illinois. The first meeting of the Board for the examination of applicants was held in April, 1930.

A rhinologist, dentist, obstetrician, pediatrician, orthodontist or most any other specialist may pay money and have his name listed in certain directories which are published, as an expert in his field. On the other hand, it might not be to his liking to pay money for this listing, therefore, he may not be listed as an expert in these directories; in fact, he will not be listed at all—not even as an "also ran." These lists, then, as a guide or index of ability of specialists, for the most part are paid for; and if occasion arises where a patient is to be referred from one town or city to another, there needs be, it has been thought, some means of knowing the competency and ability of the man to whom the patient is being referred; otherwise, the man who might desire to have his work continued to a satisfactory completion might be disappointed in the ultimate results secured for his patient.

The American Society of Orthodontists, then, by the authority properly vested in it, appointed the American Board of Orthodontia, consisting of men whose general reputation, whose ability and past experience it was thought would rightfully entitle them to be a part of a representative group in which there could be no question as to their ability or conscientiousness of effort. This Board has been given the authority to pass favorably on the ability and competency of men practicing orthodontia who desire to appear before it for examination, according to certain rules and regulations approved by the Board and thereby convince the Board that they have the necessary ability to practice the profession efficiently according to the yardstick of the Board. The Board is pledged to be nonpartisan, nonpolitical and nonbiased from any standpoint whatsoever other than the appraisal of "ability." If the Board were not religiously and definitely pledged to this last fundamental principle, there would be no excuse for its existence. As a candidate presents himself before the Board, he is examined purely upon his merits as an orthodontist. Where he received his training, where he did not receive his training, from what school, or what his present condition of servitude, is not all-important to the American Board of Orthodontia, provided, of course, he is able to satisfy this Board that he is sufficiently well trained in the subject to enable him to practice orthodontia as a science intelligently. The Board is interested primarily in ability, as we understand its policies.

As conditions appear at present and particularly during the "swaddling clothes" period of the Board, the fact that an orthodontist has been approved

by the American Board of Orthodontia is no evidence whatsoever that he has more ability to practice orthodontia than has one of his confreres, possibly, who has not passed the Board. However, it does guarantee one thing and that is that the American Board of Orthodontia is of the opinion that the individual whom it has passed upon favorably has the necessary ability to be efficient in his work. His confrere, on the other hand, may have an equal amount of ability or more, however this confrere may not have given the Board the opportunity to say, as it were, or to pass upon his merits.

The American Board of Orthodontia has been organized, conceived, and developed with no other motive in view than that it might be able to segregate members of the orthodontic profession who are approved in so far as their ability is concerned; accordingly, the Board should receive the whole-hearted and enthusiastic support of orthodontists everywhere. It is a step forward and a move in advance for the future. Within the Board's own group of examiners are identified men from practically every orthodontic source or group. If there has ever been a group in the practice of dentistry that has labored assiduously and without pay or glory for the advancement of a specialty, this group, the American Board of Orthodontia, has.

It is within our knowledge that some of the older members of the American Board of Orthodontia have devoted hundreds of hours, much money and effort in the interests of the specialty by means of the Board created within the specialty, and it is hoped those efforts are appreciated. It is to the interest of each practitioner and to the interest of his patients as well, to be able, by a competent index, to place his finger on competent practitioners in this specialty throughout the world. The American Board is trying to make this possible and is now becoming a potent inspiration, causing many to improve in quality of service.

Let us consider what the Board has done so far. At the three meetings of the Board in Nashville, Denver and St. Louis during 1930 and 1931, about eighty applications for examination leading to certification have been considered. The Board has been obliged to return a few applications, some on account of the applicant's not having been in practice a sufficient length of time to accumulate evidence that he followed his cases through the very important postoperative period until a successful result was assured, and others on account of not being in exclusive practice. However, a total of 49 orthodontists have been certified by the Board. The work for the advancement of orthodontia performed during a period of fifteen years or more by about two-thirds of this number met the requirements; therefore, they were passed on their records. The remainder were required to take examinations.

At the present time, there are 22 applications which have received preliminary consideration, and requirements in regard to further examination outlined. The secretary, Dr. Oliver, also has other applications, received since the last Board meeting. The requirements for most of the applicants have been ten case reports, a thesis on technic of at least 2500 words (in some cases of 3500 words), also a thesis on the biologic aspect of orthodontia. In some instances, in addition to the above the applicant has been examined in technic. Members of the Board have visited the offices of many of the applicants, and in each instance examined the mouths of several patients.

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It is the aim of the Board, when a weakness of the applicant in orthodontia is discovered, to make helpful suggestions in order that he may improve his service to the public. Therefore, in some instances in which applicants have written and given satisfactory clinics before societies upon the technical aspects of orthodontia, but not upon the biologic phases, they have been examined more particularly in the latter. In other instances, when an applicant through technic, theses, and case reports submitted to the Board has proved his ability to treat orthodontia cases successfully, but a visit to his office by Board members revealed that the general appearance was below the average a professional man should maintain, or when lack of interest in the local orthodontic society was noted, it was suggested that these faults be remedied, when the Board would reconsider the application.

The work of such a Board entails much responsibility. All of the members feel this responsibility, for they give each case thorough consideration, with a sincere desire to be just to each applicant, and at the same time with a kindly effort to show those who fall short of the requirements their weak points and make suggestions for their correction. No human being or group can be right all of the time. Even Napoleon and Abraham Lincoln were not correct all of the time, and, if history may be believed to be accurate, these rather important citizens had a few critics in their day. Some deeds may be mistakes, but even so they are sometimes better than no deeds at all. An examining Board composed of several members is less likely to make mistakes than is one individual, but of course a Board may naturally make some mistakes. However, it is to be hoped these will be far offset by the good work being done.

Much is heard and said about orthodontic education and preliminary training; however it is to be remembered that this problem has never yet been satisfactorily solved by any one or by any group. It is also to be remembered that there are more cases of malocclusion being treated in the world today by the mail order appliance method than are being treated by all the specialists combined, and this is interesting because after all specialists do not dominate this field in so far as volume or amount of service is concerned.

The Board, it is true, does not go into orthodontic heredity perhaps quite so carefully as it would if there were unanimous opinion as to what constituted the highest type of orthodontic blood lines; notwithstanding, it is to be noted that lamentations affording the sharpest static in regard to the young man usually emanate from those whose own orthodontic ancestry was evolved from the ranks and who enjoyed no orthodontic training, or tutoring under any of the old masters of the subject, before they started to practice.

The members of the American Board of Orthodontia are doing the best they know how to do with the situation with which they have to work, and they should have the support of orthodontists everywhere.

—*H. C. P.*

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BOOK REVIEWS

Fortschritte der Orthodontik*

It is a pleasure to welcome a fellow publication devoted to orthodontia.

The first number of *Fortschritte der Orthodontik* (Progress of Orthodontia) appeared in January, 1932. This Journal is edited by G. Korkhaus, Bonn, Germany, with the collaboration of V. Andresen, Oslo, P. J. J. Coebergh, Utrecht, Sheldon Friel, Dublin, A. Kantorowicz, Bonn, B. Kjellgren, Stockholm, A. Korbitz, München, P. Oppler, Berlin, W. Pfaff, Leipzig, J. T. Quintero, Lyon, H. Salamon, Budapest, A. M. Schwarz, Vienna, R. Schwarz, Basel.

Unlike the art of music, science has no universal method of expression. To ameliorate the obstacles resulting from the inevitable polyglot of scientific literature, this new Journal introduced the innovation of giving the title, the description of illustrations and a synopsis of each article in German, French and English. This feature is highly commendable.

This issue contains a wealth of orthodontic information pertaining to all phases of that specialty. The general captions are: Science and Research, Orthodontic Practice, Social Orthodontics, Teaching and Instruction, Novelties and Patents, Inquiries on Problems of Orthodontic Practice, The Progress of Orthodontics in the Last Year, New Books, Index of Orthodontic Literature, Proceedings and Papers, Personal Notes, Miscellaneous.

Within the limits of a greeting such as these few lines are intended to extend, it is impossible to render a detailed critique of the instructive material found in the initial number of our journalistic colleague. Nevertheless, the importance which is given to the much neglected etiology of malocclusion is worthy of mention.

The first article entitled, "The Ontogenesis of the Human Denture, in Its Relation to Orthodontics" by Dr. A. Schwarz of Vienna, should be studied by every orthodontist of every country. It calls attention to the interesting investigation regarding the influence of the tongue during embryonic and infant life. The tongue has been overlooked as a most potent factor in the physiologic development of the oral cavity as well as an etiologic factor of malocclusion. Every student of dental histology must have observed the fact shown in cross-sections of the oral cavity that tongue development precedes development of the dental germs; that the tongue rests between the lateral processes of the superior maxillae; that it gradually recedes toward the floor of the oral cavity and while so doing dictates the shape of the palatine vault. It is needless to emphasize that the arc described by the mandible is dictated by the periphery of the tongue. The investigations referred to were made by Dr. Anna Poelzl.

Other articles of the same issue likewise devoted to the etiology of malocclusion show a neglect of the study of tongue influences. These articles are indicative of the vague discriminations between hereditary and external environ-

*Review of the new orthodontic journal by Richard Summa.

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mental influences which also prevail among our European confreres. Seemingly, the ideas that eruption of teeth is a feature of synchronized maturation hereditarily transmitted as a prime factor for the survival of the organism while alignment of the teeth in its finality is controlled by external environment (harmonious muscular functioning and the concomitant atmospheric pressure) have not as yet received the deserved consideration even by our colleagues on the Continent.

All other phases of orthodontia are likewise ably represented. This Journal should be included among the literary acquisitions of every orthodontist. As previously stated the titles and synopses are given in three langauges so that if an article proves interesting a translation of the detailed portion should be readily obtainable.

Die Fortschritte der Zahnheilkunde nebst Literaturarchiv

Volume seven (1931) of the well-known work of Dr. Julius Misch, "Die Fortschritte der Zahnheilkunde nebst Literaturarchiv," printed in Berlin, was completed with the December number of this journal.

In this text and reference book for practitioners progress in all fields of dentistry has been reported by outstanding specialists. A review of recent literature on affiliated subjects previously published in different periodicals is given. Subjects treated in preceding volumes have been continued in each succeeding volume, and the subject-matter has been amply developed and brought up-to-date.

The work as a whole is a valuable encyclopedia for the scientific investigator as well as for the practicing dentist.

A Dental Assistants' Manual*

This book, by Albert Edward Webster, D.D.S., M.D.S., M.D., F.A.C.D., is designed to shorten the time spent by young women in equipping themselves to become efficient dental assistants. It aims at simplicity and clearness in its classification and arrangement of material and in its selection of illustrations. The text familiarizes the dental assistant with all of the facilities for her work. It makes clear to her the part that she is to play in relation to her employer, to his patients, and in the practice of dentistry. It instructs her in the management of the dental office and in the care of its instruments, and introduces her gradually to the work of assisting the dentist at the chair and in the laboratory.

It emphasizes the importance of the technicalities, and it includes the more modern tests. In view of the fact that women are increasingly finding their place in prosthetic dentistry, three chapters on laboratory technic are included. This book does not attempt to teach dentistry to the dental assistant, but it will help her to reach a maximum of efficiency in the shortest possible time, and it will stimulate those already in the service to attain still greater usefulness. The various contributors have all been successful teachers of the subjects which they have covered.

The book is very well done indeed and would be a valuable addition to the library of any dentist, dental assistant or hygienist.

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*Published by Lea and Febiger, Philadelphia.

NEWS AND NOTES

The American Society of Orthodontists
Thirty-First Annual Meeting

Toronto Welcomes The American Society of Orthodontists

Have you planned your trip to Toronto for the meeting of the American Society of Orthodontists May 17 to 20, 1932? The program alone will convince you that it is one you cannot afford to miss. Rarely has a program of such comprehensive scope or compelling interest been arranged by a program committee.

It includes five symposia, three outstanding essayists from the United States and Canada contributing to each. The following are the subjects to be considered:

1. To What Definite Causes May Malocclusion and Its Attending Oral and Facial Abnormalities Be Attributed?
2. What Are the Requirements of the Orthodontic Diagnosis?
3. What Are the Possibilities and Limitations of Orthodontic Treatment?
4. What May Be Considered Rational Methods of Orthodontic Therapy?
5. What Does Periodontia Offer Orthodontia?

In order that each essayist's contribution may be entirely an individual effort, the names of essayists contributing to the symposia are withheld for the present, but you may be assured that they are among the foremost men in the practice of orthodontia and allied dental specialties.

Dr. John Marshall, whose researches at the University of California have advanced to the point where he is able to make important deductions with regard to tissue changes incident to tooth movement, will read a paper. Dr. Marshall will have with him a scientific exhibit which will be of unusual interest.

The economic problem in orthodontic practice will be dealt with by Dr. Manley Bowles. This subject is of vital importance.

A word about the Royal York Hotel—it is situated opposite, and connected by tunnel with the new Union Station. As it is the largest hotel in the British Empire, and possesses one entire floor reserved for convention purposes, it can adequately provide ample and suitable accommodation for the meeting.

Needless to say, the golf enthusiasts will be on hand on Tuesday, May 17. The Recreation Committee will select the course best suited for play at that season of the year. If possible, their choice will be that upon which Walter Hagan won the Canadian Open Championship last August.

On Thursday and Friday noons, special luncheons will be arranged on the Roof Garden of the Hotel. These will be bright and interesting. There will be brief addresses upon topics of general interest. This will provide a splendid opportunity for fellowship.

Bring your wives. They will be accorded a royal welcome by the ladies' committee. All ladies who play golf are requested to bring along their golf clubs.

The dinner dance on Thursday, May 19, will be another important event. An unique entertainment of personal interest to every member of the Society will be provided. You must not miss this event.

On Saturday, May 21, the day following the meeting, the horse racing event of the Season takes place at Woodbine Park. This race is run annually for the cup and purse of fifty guineas donated by His Majesty, King George V. It marks the opening

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of the racing season, which continues during the following week and draws crowds from all parts of Canada. If the pleasures of the turf interest you, definitely plan to remain.

It will be advisable to reserve hotel accommodations early. Toronto is ready to receive you. Canadian hospitality awaits you!

G. Vernon Fisk, Chairman Local Arrangements Committee,
Medical Arts Building, Toronto.

The Royal York Hotel which will be the headquarters for the convention.

Toronto—A City to Visit

Toronto, under the very eyes of its people, is transforming itself from a very beautiful provincial city into a great national metropolis. It is in the throes of change.

In its narrow downtown streets, a legacy from colonial days when it was called Muddy York, there are still relics of its big-town past. In sharp contrast tower the twenty to twenty-five story office buildings of its big-city present, and near-by delving steam shovels and clanging riveters foretell the story of its great metropolis future. The old and the new are delightfully intermingled, though the city has stepped definitely into the metropolitan stage in its entertainment and amusement facilities.

The discovery and development of the vast mineral wealth of Northern Ontario have made Toronto the clearing center for a huge new business. New industrial development and expansion have followed in the train of this opening of new sources of Nature's

wealth. Its tourist attractions and well-organized entertainment facilities have combined to build up a business that even now rivals the great industries.

The ease with which Toronto is reached becomes a source of mutual congratulation to both visitor and the city. It is the hub for all of Central Canada, for from it radiate all the railway lines. For the many visitors from the United States it is only an overnight journey from all of the big commercial cities of the Eastern and Central states. Fifty-five million people of the United States live within 500 miles of Toronto. The magnificent highway system of Ontario invites the motorist, and from every port of entry from the United States, unrivaled roads lead to the capital of the province. Many beautiful buildings and tree lined streets outside the business districts make Toronto a city of unusual attraction. With 850,000 population it has twenty-six parks and fifty-eight playgrounds—among the former are the Toronto Islands, one of the largest municipally owned recreation grounds in the world. These islands lie a mile south of the city and are served by ferries. Centre Island is one of the most beautiful spots. They afford playing fields for all kinds of games, miles and miles of beautiful beaches, lagoons for boating and canoeing, and they shut in Toronto Bay which in summer is never without its dots of white sail.

A foot bridge on Centre Island.

Toronto is a great sailing city. Its Royal Canadian Yacht Club has the largest membership of any fresh water yacht club and maintains a magnificent club house on one of the islands. This year for the first time, a palatial high-speed motor boat sightseeing service is to be operated through this interesting section.

Municipal ownership does not stop at parks in Toronto. The city through two commissions owns and operates its lighting system and its street railway and motor coach lines. Toronto is unquestionably the best municipally lighted city on the Continent, and its transportation system ranks second to none, offering its services with cleanliness and courtesy. Far into the suburbs Toronto's streets have quaint lanterns, throwing a soft yellow light, set on poles every twenty-five yards. The electric current comes from Niagara Falls. Sunnyside is one of Toronto's proudest possessions, and the Torontonian does not hesitate to tell you all about it. Here along the shores of Lake Ontario has been created with sand from the bed of the lake itself, a waterfront boulevard second only to the harbor drive of Rio de Janeiro. Here beaches, boardwalk, driveways, parkways, bridle paths and lawns combine in miles of beauty.

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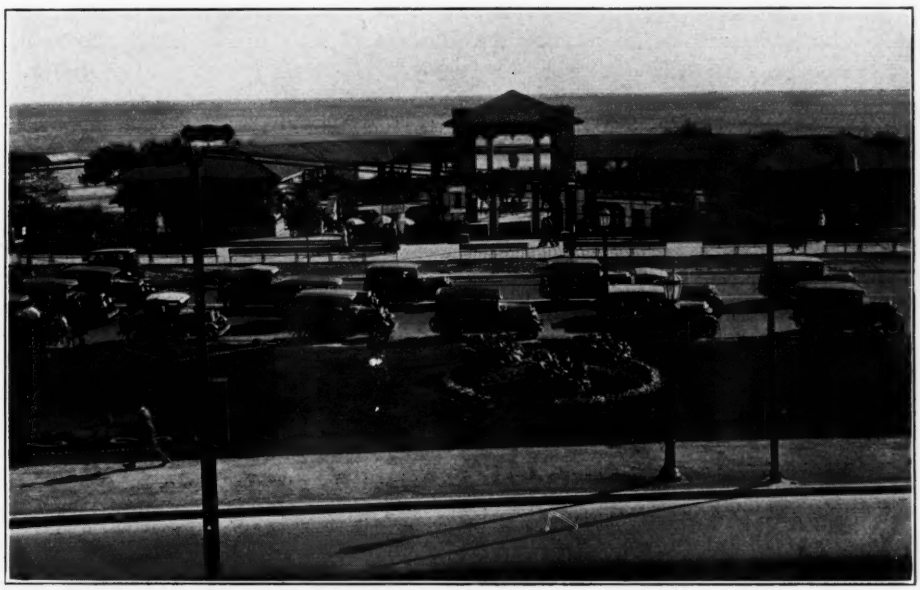
The cityward end of this development has a group of amusement features of the better type, blazing with lights and gay with music. A fine bathing pavilion is operated in connection with the largest heated outdoor swimming pool in the world. There are special parks and pools for the children, pony rides, and miniature motor cars. For the adult there are dozens of amusing games, plenty of interesting places to dine and



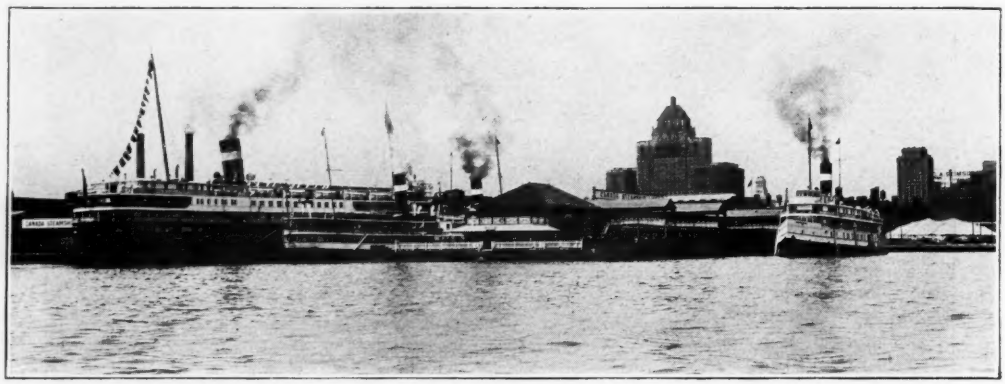
Sunnyside Beach.

The Electrical and Engineering Building and the Prince of Wales Gate at the Canadian Exhibition Grounds.

dance, and an opportunity to lay aside dignity and enjoy summer fun at its best. Light, music, cleanliness and good order make this city-operated outfit one of which any city would be happy to boast.

The Canadian National Exhibition grounds, ten minutes from down-town Toronto, and occupying a mile and a half of shore on Lake Ontario, comprise over 350 acres.

Each autumn they accommodate the largest annual fair in the world, and for this purpose have nearly one hundred permanent buildings, erected at a cost of over $15,000,000. Toronto's Exhibition Park is a civic park and is kept in the pink of condition all the time. Its roads are all paved and its floral displays are among the finest. The Canadian National Exhibition is held each year during the last week of August and the first week of September.



View of part of the water front of Toronto.

Casa Loma, the Continent's most sumptuous home.

The Royal Winter Fair is another of Toronto's big talking points. Held annually in the middle of November, it is the largest indoor exposition in the world, held in the Royal Coliseum and its adjoining and connecting building, the Live Stock Building. Here is seen the world's greatest live stock show; the continent's most pretentious horse show, with jumping events every afternoon and evening. Indeed, the finest horses of Canada, United States and Europe battle for supremacy. Besides this, there are the finest exhibits from the fields and orchards, a fox show, the world's largest poultry show, and the ever interesting dog show. The Coliseum is thronged every after-

noon and evening, and thousands upon thousands of people from the United States attend annually.

Toronto is the gateway to the vastly rich mining country of Northern Ontario, as well as to the charming Muskoka Lakes, Lake of Bays, and Kawartha Lakes summer resort sections. All within a half day's motor trip, and over paved highways. Northern Ontario streams and lakes are teeming with fish, and thousands upon thousands of United States motor cars can be seen driving to these beautiful summering places from June to September. Toronto is a great manufacturing city. It is in Toronto that mercantile and industrial financing has produced a beehive of industry with products going to all parts of the world.

As a shipping point, Toronto is important, situated in the center of the most densely populated area of Canada, and the focal point of the world's two largest railways—the Canadian Pacific and the Canadian National Railways.

Toronto has a wonderful business and financial district, scores of beautiful office buildings running up to twenty-five and thirty stories in height. Two of the world's largest department stores are in Toronto and an abundance of specialty shops showing the latest creations in women's apparel from France and England. Toronto's fur shops are interesting and there are three or four great diamond firms. Diamonds enter Canada duty free.

Toronto has two of the finest and largest hotels on the Continent—each with a thousand rooms or more, and a score of other beautiful hotels ranging in size from 750 rooms to the small homelike one hundred room hotel. There are more than 7,000 hotel bedrooms available. In a single hotel 4,070 people can be seated for a convention, and 3,380 people can be banqueted at one seating. The smaller hotels prove a revelation in service to the American visitor. The English ideal of a small hotel as a place of great comfort and the acme of service is still very much alive in Toronto.

Toronto has twenty-five fine golf courses, all within easy access, and lovers of golf are advised to bring along their clubs and enjoy a game on one of the splendid courses. Toronto has four race tracks of the highest calibre and enjoys four weeks of racing in the spring and four weeks in the fall of each year.

The Director, National Development Bureau, Department of the Interior, Ottawa, Canada, will furnish free maps of entrance to Canada and roads of Canada proper, also information concerning fishing, hunting and other forms of recreation to members of the American Society of Orthodontists or those interested in attending the meeting, if they will write for the information.

Preliminary Program

The Thirty-First Meeting of the American Society of Orthodontists, Toronto, Canada

MAY 18, 19, 20, 1932

WEDNESDAY, MAY 18

8:00 A.M. Registration.

9:10 A.M. Meeting called to order.
Address of welcome.
Response.
President's Address: Dr. Charles R. Baker, Evanston, Illinois.
Business Session:
Report of Board of Censors.
Report of Secretary-Treasurer.
Report of Librarian.

10:00 A.M. Symposium: To What Definite Causes May Malocclusion and Its Attending Oral and Facial Abnormalities Be Attributed?

2:00 P.M. Symposium: What Are the Requirements of Orthodontic Diagnosis?

4:00 P.M. Paper. A Study of Bone and Tooth Changes Incident to Experimental Tooth Movement, and Its Application to Orthodontic Practice. A summary to date of research conducted under the patronage of the American Society of Orthodontists and the University of California. Dr. John Marshall, San Francisco, California.

EVENING SESSION

8:00 P.M. Special business session.
Consideration of the proposed new constitution and by-laws.

THURSDAY, MAY 19

9:00 A.M. Business session.
9:30 A.M. Symposium: What Are the Possibilities and Limitations of Orthodontic Treatment?
11:00 A.M. Clinical report:
Illustrating the Application of Orthodontic Principles in the Treatment of Fracture of the Jaws. Dr. A. C. Gifford, Oshkosh, Wisconsin.
11:45 A.M. Visit manufacturers' exhibits and scientific exhibits.
12:15 P.M. Luncheon for Past Presidents (private dining room).
12:15 P.M. Luncheon. Program arranged by Toronto members.
2:00 P.M. Symposium: What May be Considered Rational Methods of Orthodontic Therapy?
4:00 P.M. Paper. The Economic Problem in Orthodontic Practice. Dr. Manley Bowles, Winnipeg, Canada.
Business Session, nomination of officers.
Selection of 1933 meeting place.
Adjournment.
7:00 P.M. Dinner dance.

FRIDAY, MAY 20, 1932

9:30 A.M. Symposium: What Does Periodontia Offer Orthodontia?
10:30 A.M. Business session.
12:30 P.M. Luncheon. Program arranged by Toronto members.
2:00 P.M. Clinics. Table clinics. Group clinics.
4:30 P.M. Adjournment.

The American Board of Orthodontia

A meeting of the American Board of Orthodontia will be held at the Royal York Hotel, Toronto, Ontario, on May 16 and 17, 1932.

Those orthodontists who desire to qualify for a certificate from the Board should secure the necessary application form from the Secretary. The application must be returned to the Secretary, together with any other required credentials, at least sixty days prior to date of examination. In order to expedite the examinations the Secretary will designate the hour at which the applicant may appear before the Board on one of the above mentioned days. Applications filed at the time of Board meeting will have preliminary consideration, so that applicant may be advised of work required for his subsequent examination.

Attention is called to the following resolutions adopted by the Board:

Any person desiring to make application to the Board for a certificate shall have been in the exclusive practice of orthodontia for a period of not less than five years or an equivalent to be determined by the Board and based upon the following conditions:

First, an instructor in Orthodontia in a school satisfactory to the Board.

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Second, an associate in the office of an orthodontist whose standing is satisfactory to the Board.

It is, however, definitely to be understood that any person at the time of making application for a certificate shall be in the exclusive practice of orthodontia in his own name.

ALBERT H. KETCHAM, President,
1232 Republic Building,
Denver, Colo.
OREN A. OLIVER, Secretary,
1101 Medical Arts Building,
Nashville, Tenn.

Dental Society of the State of New York Preliminary Program

The Dental Society of the State of New York will hold its sixty-fourth Annual Meeting in Albany, New York, May 11-13. Literary exercises, exhibits, etc., will be held at the Hotel Ten Eyck. E. W. Briggs, 1116 Madison Ave., Albany, N. Y., is chairman of the exhibits committee. D. E. Hurley, 80 Fourth St., Troy, N. Y., is chairman of the clinics committee. The Executive Council will convene for the transaction of the business of the Society, Tuesday, May 10, at 3 P.M.

The essayists are: J. L. T. Appleton, Philadelphia, Pa.; John Burkhardt, Jr., Philadelphia, Pa.; Charles Frazier, Philadelphia, Pa.; Chalmers J. Lyons, Ann Arbor, Mich.; Alex H. Paterson, Baltimore, Md.; Weston A. Price, Cleveland, Ohio; A. E. Webster, Toronto, Ontario.

Application has been made for reduced railroad fare on the certificate plan in the following states: New England States, New Jersey, Pennsylvania, New York, Ohio, Canada, and Michigan. Procure a certificate when going, deposit it at the registration booth for validation. If 100 certificates are validated, a one-half fare will be granted on the return trip.

During the time of the meeting, sessions of the New York State Dental Hygienists Association and the Dental Assistants Association will be held.

Headquarters will be at the Hotel Ten Eyck and reservation should be made direct with the hotel management.

For information with reference to the Literary Exercises, Clinics, etc., apply to:

A. P. BURKHART, Secretary,
57 E. Genesee St., Auburn, N. Y.

The Sixty-First Annual Meeting of the Kansas State Dental Association

The Sixty-First Meeting of the Kansas State Dental Association will be held at the Allis Hotel, Wichita, Kansas, April 25, 26, and 27, 1932. Among the speakers will be Dr. Adolf Berger, New York City; Dr. Sterling V. Mead, Washington, D. C.; Dr. Herbert D. Coy, Hamburg, Iowa. All members of the A. D. A. are cordially invited to attend.

FRED A. RICHMOND, Secretary,
305 Federal Reserve Building,
Kansas City, Kansas.

Virginia—West Virginia Joint Meeting

The next annual meeting of the Virginia State Dental Association and the West Virginia State Dental Society will be held jointly at Winchester, Va., May 16, 17, 18, 1932.

Preliminary plans are well under way, and one of the largest and most interesting meetings ever held in the South Atlantic Section is predicted by the officers. Members of the American Dental Association are cordially invited to attend.

DR. R. B. SNAPP, General Chairman,
Winchester, Va.

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Joint Convention of the British and Canadian Dental Associations

The British, Canadian and Ontario Dental Associations will meet in joint convention at the Royal York Hotel, Toronto, August 8 to 12 this year.

Prominent essayists and clinicians from the British Isles, the United States and Canada will have a part in the program. Members of the American Dental Association are invited to attend.

Tennessee State Dental Association

The sixty-fifth annual convention of the Tennessee State Dental Association will be held May 9 to 11, at the Hotel Peabody, Memphis.

The following men will be among those taking part in the program: Dr. Hugh MacMillan, Cincinnati, Ohio; Dr. A. K. Parks, Montgomery, Ala; Dr. Robert E. MacBoyle, Chicago, Ill.; Dr. F. C. Elliott, Memphis, Tenn.; and Dr. Carl W. Hoffer, Nashville, Tenn.

Psi Omega to Celebrate Fortieth Anniversary

In commemoration of the fortieth anniversary of the founding of Psi Omega Dental Fraternity in Baltimore, during the winter of 1892, Oriole Alumni Chapter and Phi-Alpha Active Chapter will hold an anniversary celebration at the Lord Baltimore Hotel, on Saturday, April 16, 1932.

All Psi Omegas are invited to attend. The banquet charge will be five dollars per cover, and reservations can be made through

ALEXANDER H. PATERSON, General Chairman,
Medical Arts Building,
Baltimore, Md.

The Dental Hygienists Association of the State of New York

The Dental Hygienists Association of the State of New York will hold its twelfth annual meeting, May 11 to 13, at the Centennial Hall, Albany, N. Y.

In addition to an interesting series of lectures on diet, education, psychology, and prenatal care, Dr. John McCall of New York City will conduct a four-hour course on the taking and development of x-ray pictures. Miss Ferna I. Kendall, 328 E. 56th Street, New York City, will gladly furnish information in regard to this course.

A cordial invitation is extended to all members of the dental profession, dental hygienists and dental assistants.

BLANCH A. DOYLE, President,
100 West 59th Street,
New York, N. Y.

American Dental Assistants Association

The Eighth Annual Meeting of the American Dental Assistants Association will be held in Buffalo, New York, September 12 to 15, 1932. For further information address

RUTH M. CLARK, General Secretary,
Suite 1-4, Scofield Building,
Minot, North Dakota.

Notes of Interest

Dr. Herbert C. Hopkins and Dr. Stephen C. Hopkins announce their removal to 1726 Eye Street, Washington, D. C., where they will share offices and continue separate practice in orthodontia.

Dr. M. A. Munblatt wishes to announce his association with Dr. Milo Hellman, 57 West Fifty-Seventh Street, New York, N. Y. Practice limited to orthodontia.

Dr. Oliver Wilson White announces the removal of his office to 213 David Whitney Building, Detroit, Mich.

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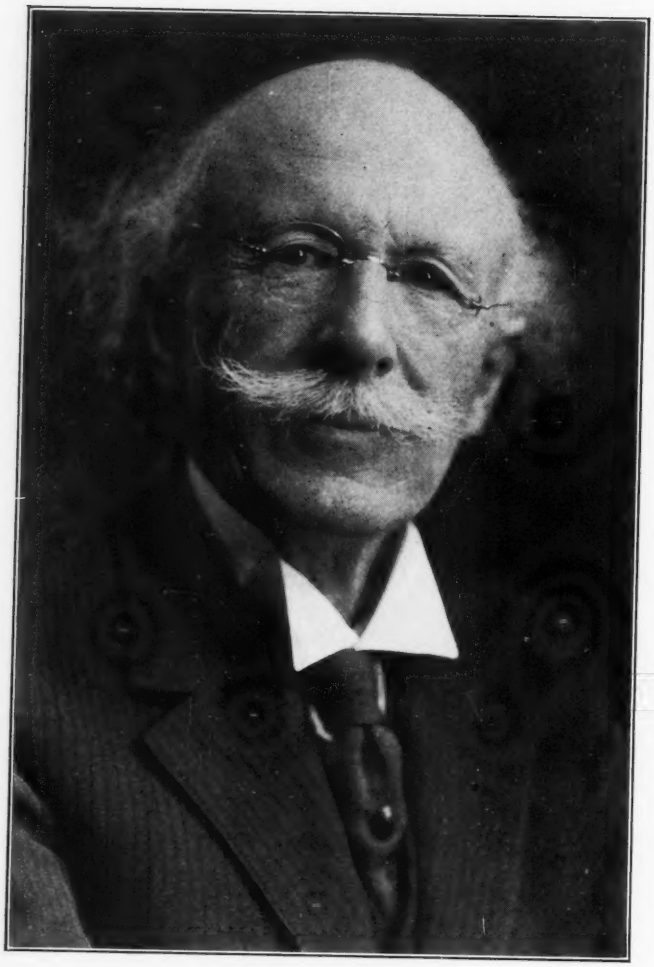

JAMES LEON WILLIAMS
1852-1932